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Map of the North Central United States

Midshipmen's Cruise

With 5 Illustrations

40 Natural Color Photographs

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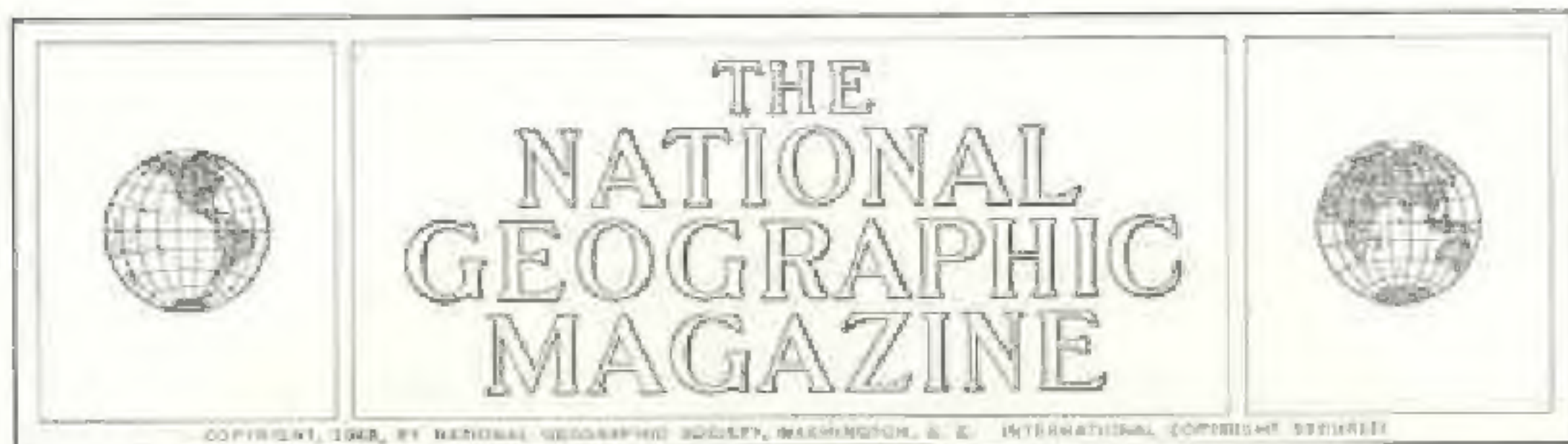
The Society's New Map of the North Central
United States

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Midshipmen's Cruise

By MIDSHIPMEN WILLIAM J. ASTON AND ALEXANDER G. B. GROSVENOR, USN

SHOVE OFF, coxswain. Return to the sea wall," sang out the Junior Officer of the Deck of the U.S.S. *New Jersey*. About him was the clamor and confusion of the launch's load of midshipmen trying to locate sea bags, suitcases, and blue service uniforms heaped in pyramids on the forecabin.

The motor launch, empty now of its cargo of human freight, with a roar headed back to the United States Naval Academy dock in Annapolis, Maryland.

Wistful glances followed her wake as she gradually grew dim in the rainy mist of that early Saturday morning, June 7, 1947. Some fellows, perhaps a little homesick, tried to bring to life the last beautiful image of the June Week O.A.O. (one and only). But the eager ones were already heaving sea bags down the forehatch, glad to be away from the confining walls and books of the Academy and bound for foreign shores.

Ever since Rear Admiral James L. Holloway, Jr., Superintendent of the Academy, had announced our cruise plans, all hands had been enthusiastically awaiting this day.

Edinburgh, Oslo, Copenhagen, London—glittering names lay ahead. Now with our task force of two battleships, *New Jersey* and *Wisconsin*, the carriers *Randolph* (flagship) and *Kearsarge*, the LSD *Fort Mandan*, and four destroyers, 2,100 midshipmen shoved off for their first taste of a sailor's life and travels (Plate I).

The new second class (juniors) enjoyed the sunbathing on the flattops (Plate XV).

Our division of 60 youngsters (third classmen, or sophomores) and first classmen (seniors), plus 10 Reserve midshipmen from various colleges, was quartered forward of *New Jersey's* No. 1 16-inch gun turret. Our pipe bunks—and they were comfortable too—were stacked in tiers of four, lining the bulkheads

(walls or ship's side) and grouped compactly in columns, fore and aft, two tiers wide, but with enough room to scout out quickly.

We were each assigned a locker, so tiny it left us skeptical. How could we cram all the gear in our two bulging bags into that small space? Nevertheless, after much refolding and rolling, our "white works," "skivvies," etc., were squeezed in.

One of Uncle Sam's battlewagons is a self-contained, multi-decked machine. Think of it as being divided into thirds. The superstructure, with its bridge and command stations, is the brain. The middle third (first two decks below main deck) feeds and repairs the two other sections. Lastly, the lower division, with its turbines, boilers, and generators, energizes the ship.

We Learn Our Way Fore and Aft

It was three or four days before we could step through watertight doors from one compartment to another without bruising our shins. But it took longer to master climbing and descending ladders (no stairs!) from one deck to another without use of seat, elbows, and gravity.

Shipboard navigation, taught by personal experience, was not learned by many for weeks. We were in England before some of us found the cobbler or tailor shops. During a pre-cruise lecture a humorous instructor said that to survive the cruise we must learn the location of only three places: our bunks, the chow line, and the "head." We all survived.

A frequent question of the late war was, "How can Halsey and Mitscher stay at sea so long without refueling at a base?" Now it is an everyday trick to transfer millions of gallons of fuel from a fleet oiler to thirsty battlewagons while under way. Our first dem-



U. K. Navy, Official

Midshipmen Leave H.M.S. *Victory's* Entry Port and Walk down the Brow (Never Gangplank!)

A latticelike series of gangway steps, or battens, enabled men to climb aboard. Muzzle-loaders peep from three gun-decks. Each of the three masts has a fighting top (upper right) where some ships stationed marines to fire muskets during battle. A ball from such a French top killed Lord Nelson at Trafalgar (page 719 and Plate XXIX).

onstration occurred a day out of Annapolis.

Sunday morning, on coming topside for our first look at the Atlantic, we were greeted by a startling sight. Dead ahead steamed a Navy oiler, the huge *Wisconsin* surging close to her portside. At first glance they seemed about to collide, but then we saw they were laced together with snaky black lines (Plate X).

Slowly our skipper coned the *New Jersey* into position on the opposite side. Inch by inch we crept up, until we were only 100 feet from the oiler's bridge. Because of the armored conning tower, steersmen on duty could see only dead ahead, so they never knew how close the steel monsters were. Eyes glued to compasses and ears tuned to captains' voices, they kept the ships on steady course hour after hour. A veteran officer told us that even in wartime simultaneous refueling of two battleships was as rare as "sun off Cape Horn."

Our big ship supplied its destroyer escorts with fuel throughout the cruise. What a sight it was to see a "can" bucking the waves as she received her oil transfer!

These sleek ships swung up from astern, turned parallel to us, and slid over to within 20 feet of our life lines. Then, as they stuck their sharp noses into every wave, we fired lines from our heaving guns over their fore-castles.

Quickly the crews pulled over hoses, and the cans were suckling alongside the mother ship. Waves breaking over the destroyers made it a risky and slippery job for the line-handling crews (Plate VII).

Less Romance, More Work

Some landlubbers imagine that midshipmen's cruises are luxury voyages. Admittedly, foreign ports are romantic; but long days of work at sea are far from luxurious.

On last summer's cruise the youngsters received instruction from three academic departments—Seamanship and Navigation, Ordnance and Gunnery, and Marine Engineering—for a month each (Plate IX).

Our "seamo" course qualified us for the rating of seaman, first class. We lived the lives of deckhands, did their jobs, stood their watches. Thus we began learning the Navy from the bottom up.

Our watches, stood four hours on and twelve off (instruction periods were attended when off duty), ranged through 32 different stations, from a lookout in the clover leaf (the tiptop level of the mast) to a life buoy watch at the rail or assistant helmsman on the bridge. Many of us found our spell at the wheel the most thrilling job. It was quite a trick trying to hold that monster within a degree of her course.

We all favored Ordnance and Gunnery. Besides being out in the air most of the time, we stood no watches.

During the day's three hourly drills we became familiar with the ship's guns, perhaps by a tour through a monstrous 16-inch gun turret or by actually tearing down and cleaning a 40-mm. antiaircraft gun. Often we viewed training films and studied for and passed the tests seamen must take to become third-class gunner's mates.

In Marine Engineering we experienced our most uncomfortable conditions. This was particularly true for those lads down below when tropical climate prevailed.

To familiarize midshipmen with the "works" that make a mighty battleship tick, we stood watches at nearly every engineering station, from tending a blazing boiler to jockeying a turbine throttle in an engine room. We weren't long discovering how to brew the black gang's favorite drink, "Joe" (coffee). We gulped it beneath a roaring air blower and soon kept pace with the crew, sometimes drinking 10 cups a watch.

Reveille! Grab a Brush!

"Reveille! Reveille! Heave out and trice up." Dim ruby battle lamps blink off, and blinding overhead lights flash on.

You glance at your watch—5:30. It's too early; oh, for a few more minutes' sleep! You roll over, hoping . . .

"Hey, mister! Hit the deck! Make up that bunk and clear the compartment."

You stumble around trying to sort out your dungarees from piles of your shipmates'.

Ten minutes after reveille the Navy is after you again.

"Turn to! Scrub down all weather decks! Clamp down all living spaces!"

You stagger up through the hatch and greet the morning. Your fervent hope of meeting a torrent of rain (your only escape from scrubbing) is shattered by the glaring sun.

Finally you reach your division's cleaning area. Any fellow earlier than you already has the deck awash. Last thoughts of sleep die out when the hose tender arches a chilly stream of water over your shivering bare feet.

A bosun's mate hawls for action. "O.K.! O.K.! Grab a brush and get moving."

A few of you jam sticks (the standard Navy handles) into scrub brushes and, with a hose backing you up, you soon have the area covered. Others follow the brushes, clearing off the water with rubber squeegees. If any salt streaks appear on deck, the job has to be done over again (Plate VI).

Just before the first call to breakfast, the bosun's mate grumbles, "O.K., secured! Every-

body on deck sooner tomorrow morning."

Breakfast!

Long before the bosun's shrill call to the first mess, two chow lines begin to form on either side of the ship. Soon they lead all the way to the stern and double back, so the hindmost man actually heads away from his meal.

Folding benches and portable tables fill the eight mess compartments, which between meals double as classrooms, theaters, and places of worship (page 718).

To feed the crew expeditiously, serving is done cafeteria style.

If you're in a hurry, you may stow your chow in five minutes; lingering is not encouraged. The entire crew must be fed in three chow calls, each 15 minutes in length.

For heavy eaters, survival depends on the number of times they contrive to go through the line. A tasty dessert always means a lasting line.

Seagoing Housemaids Have a Field Day

Field day, to one who doesn't know the secret, sounds like a day of merrymaking or suggests a track event.

But field day in the Navy serves the ship as a housewife's weekly cleaning day. Every bulkhead is scrubbed, paintwork washed, all brightwork polished (Plate VII). Last, but not least, the teak decks are holystoned.

This nautical word may be familiar, but have you ever seen a holystone in action? From painful memory, every admiral can give a vivid description of the tool.

Wooden decks once were holystoned every day, but heavy wear by sand and stone meant expensive replacements. Therefore, today's seamen turn to with their "boiler bricks" and bent backs but once a week.

To holystone, one needs equipment valued at less than a quarter and a 30-second lecture, including instruction in elementary wrestling. The instruments of torture are a long stick, sand, water, and a halved fire brick. The stick fits a small hole in the brick.

Do you want to learn the proper grip and stance? O.K., bend over double and take hold of a broom with your left hand about 18 inches from the bottom. Then place the upper half of the handle against your right hip. With your right hand, reach under the stick and grab your left wrist. This hold, a perfect double arm lock, enables you to push down on the stone and at the same time slide it back and forth sideways.

Five to 30 midshipmen line up along a plank (page 716). With one to count cadence, the entire group should move in rhythm. But there's always some knucklehead who delights in doing things the opposite way.

The stroke is about 20 inches, right, left, right, left, until 20 passes are made. Then with the command, "Shift," the men step back or forward together to the adjacent plank.

This work is as backbreaking as any ever devised, and there is no way to beat the system. Should a fellow slack up, the stick slips and trips the brick, snarling the rhythm.

Field day for those down in the engine spaces is certainly the most unfavorable aboard ship. Its dirtiest form is boiler-tube cleaning. Stripped to their waists and armed with wire brushes, the black gang worms through a small hatch into a jet-black boiler. Here, with an extension cord and bulb for illumination, the lads scrape the carbon-caked water tubes. Often a chisel is needed to loosen the scale. The work isn't as back-breaking as holystoning, but it is certainly the dirtiest aboard ship.

Or you might find yourself confined down in the bilge, or double bottom, scraping rust and cracked paint and then repainting. A mixture of slime and yellow chrome forms a colorful but greasy coating on blue dungarees.

Now you can understand the luxury of drawing a morning or afternoon watch on field day.

We Drill with Dummy Guns

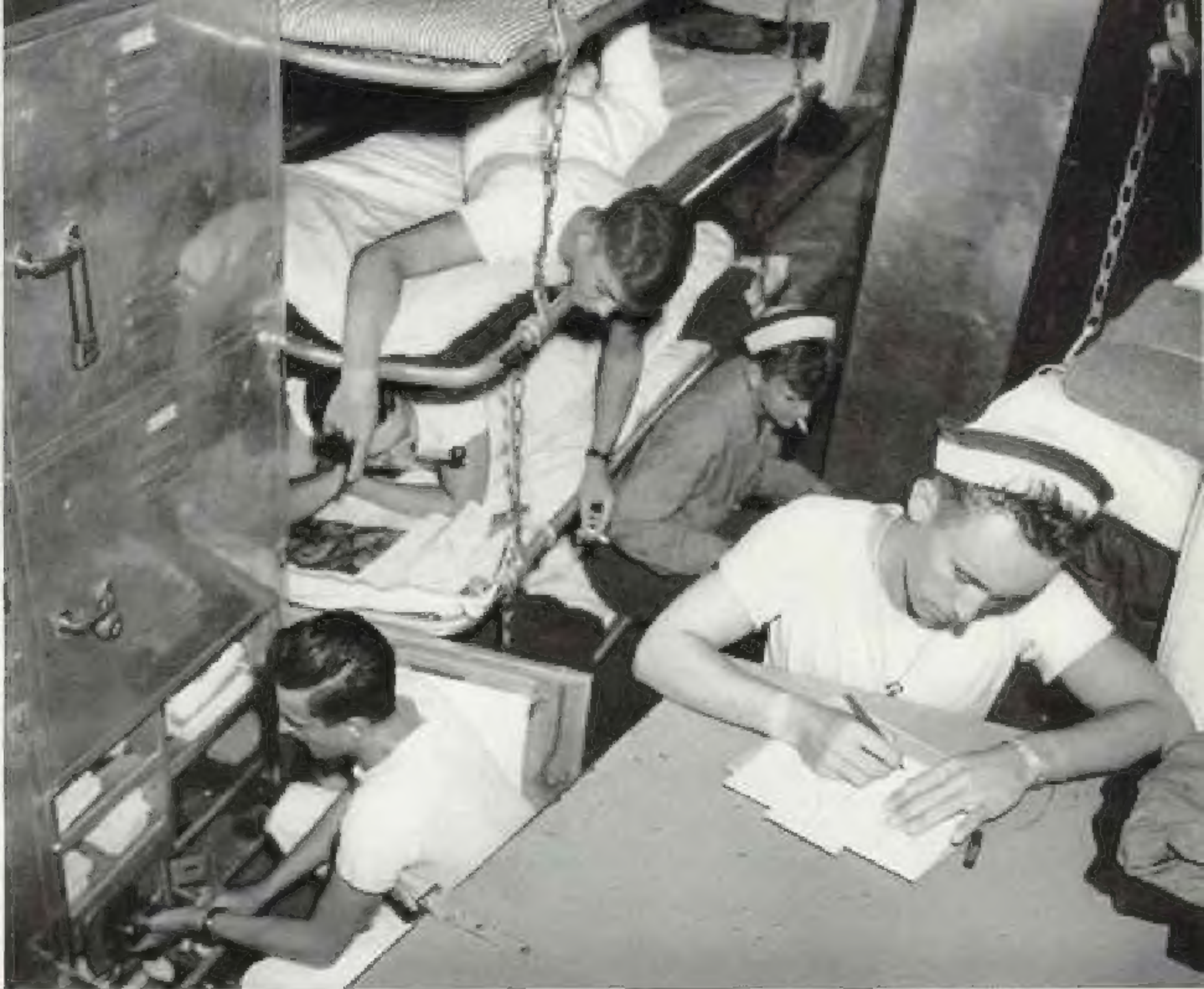
After two weeks at sea we took over the defense of the ship. With the exception of officer safety observers, the 40-mm. antiaircraft guns and dual-purpose (air and surface firing) 5-inch batteries were manned by youngsters and first classmen. So were the nine 16-inch guns in the three turrets.

Daily drills soon made us as proficient as the ship's company crew. At the first note of General Quarters, we double-timed to our mounts and turrets. Unless actual firing was scheduled, we practiced training the guns and simulated loading and firing them.

But you don't learn to load these weapons by tossing live ammunition around—you might burn your fingers! So for the first two weeks we viewed Navy training films and practiced on loading machines (Plate XI).

These dummy gun mounts produced only loud and annoying bangs. Tangible products were bruised toes and sprained fingers. Using dummy powder bags and counterfeit shells, the 5-inch loading machine operated with seemingly perpetual motion, its "firing" halted only by an officer whose stop watch was our whip (Plate XIII). Two men heaved a powder bag and shell into the breech; another "fired" them forward into the hands of two others. The operation grew monotonous, but efficient.

Our targets usually were red sleeves about



ALFRED G. H. GRIFFITH

New Jersey's Cruising Youngsters Bunk Sardine-fashion in Tiers of Four

Each man has a locker so small that he wonders how he can cram all his gear into it (page 711). One lad uses a peacoat locker top, his compartment's popular card table, as a writing desk.

30 feet long, towed by carrier planes. As a special treat, tiny drones were launched from catapults aft (Plate XIV). These radio-controlled planes, guided by an aviator on *New Jersey's* fantail, made kamikaze-like passes over the ship from every angle. Pursuing erratic courses, they were harder to knock down than the sleeves.

"Hummingbirds" Deliver the News

"In the old days, when I was at sea . . ." Who hasn't heard these words from some salt-crusted seaman of yesteryear? Imagine what he'd say if he saw a helicopter delivering the morning newspaper!

Each day around 0630 (6:30 a. m.) one of these mechanical hummingbirds, operating from the *Randolph*, made the rounds of every ship, delivering packets of guard mail and the *Cruise News*, the squadron's daily newspaper.

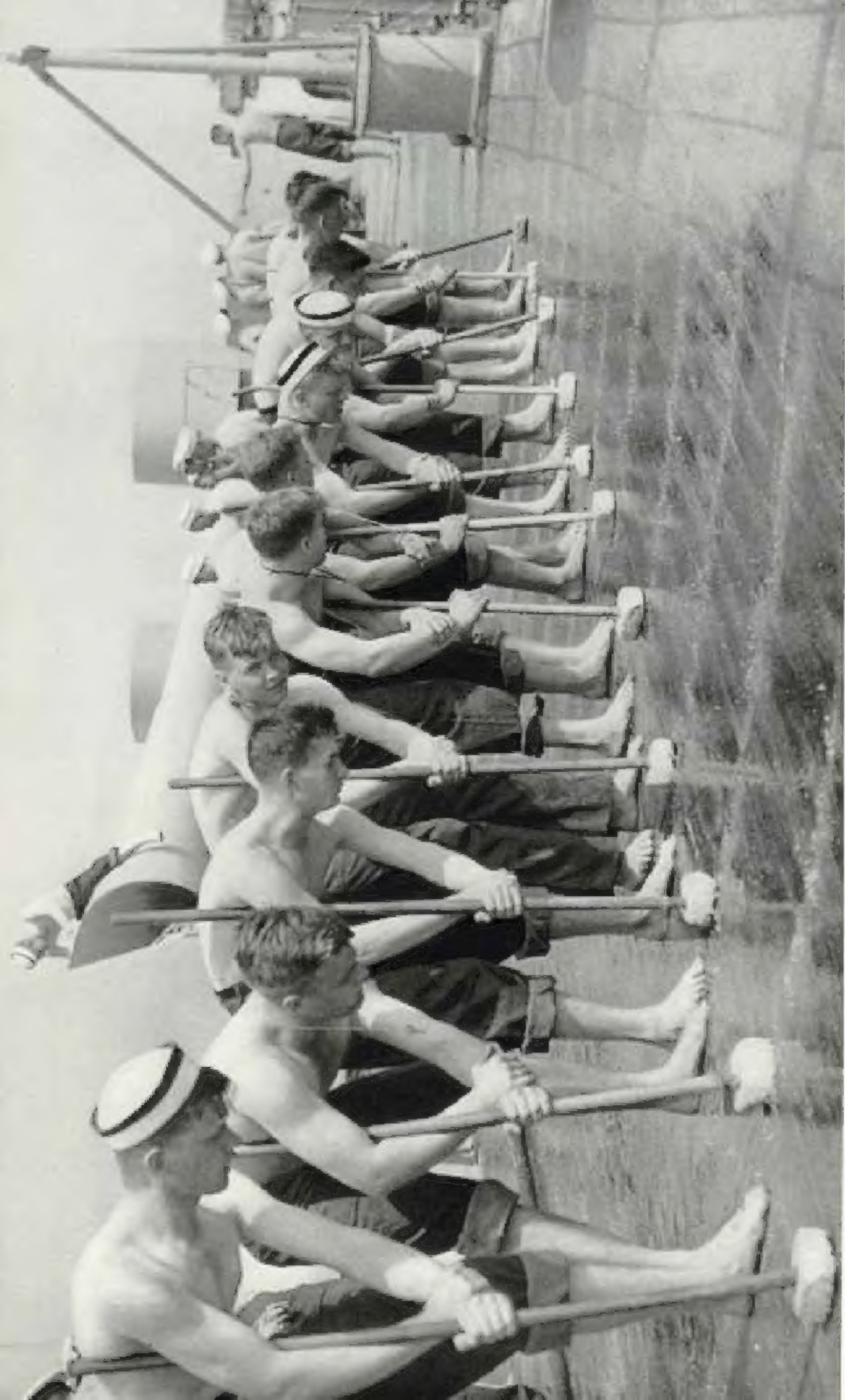
Transfer of mail took only about 30 seconds. On approaching the ship, the co-pilot lowered a satchel by hand. Petty officers on *New*

Jersey's forecastle detached it and hooked on their own outgoing mail.

Occasionally, too, a hitchhiking officer was dropped off or picked up (Plate VIII). While the 'copter hovered above the deck, a steel line was lowered by winch mounted on the helicopter's roof and hooked to a linen strap under the arms of the passenger. Then the pilot hoisted him until he could swing into the cockpit.

Our first landfall in the British Isles was Butt of Lewis, northernmost point of Lewis, largest island of the Hebrides. In a few hours the sheer cliffs of Cape Wrath drew abreast as we continued eastward to Dunnet Head, sentinel of the western approach to Pentland Firth.

It was a beautiful Sunday morning when we entered this 7-mile gap between the Orkneys and the mainland. The waters just inside the Firth were so placid it was difficult to believe the warning of the *British Islands Pilot*, which cautions vessels, in fair weather or foul, to expect extremely turbulent waters.



Wayman Post

Arms Locked Around Sticks, Youngsters Wisconsin's Decks. Once in Line, No One Can Shirk This Backbreaking Job

Middies Monopolize Elizabeth and Her Fiance

Last summer twenty lucky midshipmen were invited to the Buckingham Palace garden party honoring Princess Elizabeth and Lt. Philip Mountbatten.

Here three Americans (center, right) have gained the Princess's aide, Mountbatten (in Royal Navy uniform) stands at her right.

"Their naturalness and friendly nature quickly put us at ease," one of the midshipmen said. "Soon we were chatting gaily and even joking. . . . Our talk, which lasted 10 or 12 minutes, was finally interrupted by the fidgiting ushers, who realized we had more than tripled the usual allotment of time."

Later the Americans proceeded to rescue Princess Margaret Rose from her seeming boredom. Said one: "I was tempted to ask for a date, but courage failed me."

For once, the King is not the main center of attention. He stands at left center talking with civilians (page 720).

British Pool





Alexander G. B. Grosvenor

Chow Time Knows No Slackers; Every Man Aboard Ship Does His Duty Nobly

Performance is especially noteworthy whenever the Navy serves a tasty dessert: then some men go through the canteen line twice (page 714). Even in hot weather, many of these lads drink a dozen cups of coffee a day.

The most treacherous spot is a narrow, ever-shifting belt where the 7-knot current from the North Sea clashes with tides moving in from the Atlantic. The rocky coasts of northern Scotland and the Orkneys act as a funnel, causing the waters to converge in the Firth.

This belt of water is marked with violent eddies and treacherous whirlpools. Even with such splendid weather as we enjoyed, our 45,000-ton ship was twisted like a small steamer. Steering was difficult; standing required a balancing act.

Next morning we entered the Firth of Forth, the main estuary on the east coast of Scotland. Sir Walter Scott and Robert Louis Stevenson sang the praises of the view from the Highlands, where the Forth lies spread out "like a blue floor," bordered by golden sands and green fields.

Task Force 81 entered the Firth on a gray, rainy day. We saw, not the golden sands or blue floor, but only a cold gray blanket, spotted here and there by brownish hamlets

and dark, sleeping ships. Ahead arched the Forth's famed cantilever bridge (Plate XVII).

As we sailed below, our mast almost brushing the span, five hooky-playing Scottish children leaned out and waved a large American flag. So slight was our clearance that they could almost have stepped down into our lookout tower.

Those smiling youngsters typified the Scotland we saw during our visit. Scotland to us was a land of rugged scenery and never-shining sun. Its fiercely proud, liberty-loving people made us feel at home in this, our first port of call (Plates XVIII to XXV).*

Oslo Welcomes the Middies

Just before breakfast on June 30, two days out of Rosyth, our two battleships swung north into Oslofjord, leaving the Skagerrak astern. The other ships of our squadron had

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Bonnie Scotland, Postwar Style," by Isobel Wylie Hutchison, May, 1946.

left for ports in Denmark and Sweden.

Some 20 miles up this deep, forest-banked fjord, we exchanged salutes with Karljohansvern, headquarters of the Norwegian Navy.

Scores of graceful sailboats, heeling gently to the morning breeze, joined in welcoming us to Oslo. Friendly cheers were frequently exchanged, particularly when a boat's crew was feminine.

Our 5-day visit to the Norwegian capital was high-lighted by shopping sprees, social functions, and country tours. Bartering with the store clerks wasn't difficult, as English was fairly well known. Most of us sought brilliantly decorated ski sweaters and Norse winter outfits. It seemed strange to see skis being brought on board in the evening by perspiring new owners.

Some of us took an electric train up to Frognerseteren, on a hill northwest of Oslo, which is a center of Norway's famous winter sports.

Looking down some 1,500 feet, we beheld a panorama of rare beauty. Our view stretched 50 to 70 miles about the compass. To the east the pine-covered hills of the Swedish frontier dotted the horizon. To the south lay Oslo, its fjord winding away into the distant mist. Our anchored battleships seemed tiny and insignificant.

Viking Ships Re-create the Past

Oslo gave a round of dances and parties in our honor. At the American Embassy's dance, two Navy orchestras from the squadron played our favorite numbers. Norwegian girls, beautiful as they were gracious, danced with us to the strains of American music.

Oslo's hospitality seemed to have no limit. There were few middies who didn't enjoy a home-cooked meal. One mother insisted that a midshipman date her son's fiancée while the poor lad remained home!

To many, Oslo's museum of Viking ships was the most interesting sight in Norway. Found entombed in blue clay near Oslofjord, these relics offer standing proof of Norway's early maritime prowess.

When Viking chieftains died, they were often buried in their ships, along with their possessions. The Oseberg ship contained such an abundance of articles that it gave a reliable picture of the daily life of the Vikings around A. D. 800.

A more advanced link in the country's nautical history we found at the Fram House. The *Fram*, built in 1891-92, was specially designed for polar exploration and built by Colin Archer, of Larvik. At points her sloping sides are almost a yard thick. Her hull

is rounded so as to rise out of the ice if squeezed by the pack. When the *Fram* was frozen in on Dr. Fridtjof Nansen's polar expedition (1893-96), its scientific design and structural strength enabled it to overcome ice pressure that would have crushed conventional ships.

A visit to the Royal Yacht Club on the Frognerkilen would excite any sailor with admiration for the seafaring Norwegians. Here we found a fleet of 6-meter and 20-square-meter boats. The navigators of the clumsy Viking longboats would have gaped in awe could they have seen these slim, graceful sailboats skimming along in the class races.

Our Norwegian visit ended with a dance on the *Wisconsin*. "Whisky's" decks, surrounded by decorated life lines, presented an unusual dance floor. Lights and signal flags gave color to the scene. A lavish spread in the officers' wardroom satisfied the hungriest "chow hounds."

Leaving Norway, we witnessed a magnificent demonstration of seamanship. Crown Prince Olav reviewed our battleship division as we steamed for Portsmouth, England. Rather than use a destroyer or a large yacht, he stood in the cockpit of a 50-foot cruiser tossing and yawing in the choppy mouth of Oslofjord.

Throughout the passing of our ships, the Prince adhered to the adage of the sea, "One hand for the ship and one for yourself." Never before had we seen a boat do four-dimensional gymnastics. Yet at all times the Prince had his right hand raised smartly in salute as *Wisconsin* fired the 21 guns reserved for chiefs of state and for royalty.

Nelson's Victory Almost 200 Years Old

During our stay in Portsmouth, most midshipmen visited H.M.S. *Victory*, Nelson's flagship at Trafalgar. At the time of her launching in 1765, this 2,162-ton man-o'-war was the fastest first-rate of her size in the Navy. Others had gun decks 175 feet in length, but *Victory's* was 186 feet. The added length gave her finer lines and extra speed.

Midshipmen were given the run of the ship. Those who desired could join tours conducted by British petty officers.

Interesting yarns could be coaxed from the guides. We were told, for example, that strict naval etiquette was enforced aboard a flagship even in Nelson's time. An admiral always walked on the starboard side of the quarter-deck. But Nelson, disliking protocol, was often seen on the captain's side. This custom perhaps accounted for his death. At Trafalgar

he was encroaching on Capt. Thomas Masterman Hardy's promenade when he was mortally wounded by a French sniper's bullet.

On descending from the weather deck, we saw batteries of muzzle-loaders, above which *Victory's* crew of 800 men strung their hammocks. The two lower gun decks, crowded as they must have been, were often their home for years.

In the gun room we saw the crude muscle-powered steering apparatus used to navigate the ship in emergencies. Her wheel shot away by a French broadside, *Victory* was steered at Trafalgar by men pulling on tackles attached to this monstrous tiller.

On the lowest of the five decks, the orlop, Nelson died. The wounded admiral early in the battle was carried below to the pit (sick bay). Here, within a few feet of the midshipmen's mess, Nelson spoke his dying words: "Thank God, I have done my duty."

Close by we noticed crude instruments used by surgeons of Nelson's time. The most impressive thing about the pit was the illumination the ship's surgeon did not have. If you would enter a dark coal bin and attempt to read this magazine with the light from one small candle, you would understand the difficulties experienced by *Victory's* surgeon, Mr. Beatty, as he worked during battle.

On the bulkhead hang a painting, executed from eyewitness accounts, showing the death of Nelson, with his surgeon, aides, and Captain Hardy grimly grouped about him.

As our tour ended, one midshipman remarked that Nelson's sailors were lucky—they had no hot, noisy, engineering watches to stand. We all agreed wholeheartedly, until a ship's officer told us it was not unusual for large men-of-war to spend two or three days coming the three miles from Spithead into the Dockyard. Later we learned that jack-tars' wives often came aboard at Spithead and stayed until the ships docked.

Several midshipmen attended a dinner aboard *Victory*. Their host was Admiral Lord Fraser, Commander in Chief of the Portsmouth area, who flew his flag in *Victory*. In wartime Lord Fraser was the Commander in Chief of the British Pacific Fleet. Lately he was appointed First Sea Lord.

One of the fortunate midshipmen reported:

"We were welcomed by the C.O. and taken aft to Lord Fraser's cabin, the same cabin Nelson used at sea. Here we chatted with the Admiral and his other guests before entering Nelson's dining cabin, just forward of the main cabin. His silverware, candelabra, and table pieces were used that evening; and we dined and wineed in the same manner as did Lord Nelson and his captain."

Admiral Fraser spun a yarn recounting *Victory's* role at Trafalgar, where she and her attendant ships wrecked Napoleon's plans for invading England. Later he pointed out a recently repaired wound in the hull—a memento of Hitler's blitz of 1940.

Princess Elizabeth Greets Midshipmen

Twenty midshipmen consider themselves the most fortunate lads in the squadron—they attended the King's garden party at Buckingham Palace (page 717). Here's how a royal guest depicts the memorable occasion:

"Our group of 20, sequestered by a Navy 'first-striper,' was composed of ranking first classmen, class officers, and a few youngsters. As we passed through the palace gates, we encountered throngs of Britons, eager for a glimpse of the newly engaged Elizabeth and Philip. Eight thousand dignitaries formed an almost impenetrable barrier around the rear of the palace. The great number of guests surprised us; we had expected a small, informal party, and everyone had envisioned long chats with the Royal Family. What an illusion!

"Princess Elizabeth, with Lieutenant Mountbatten at her side, and King George emerged from the palace and began filtering through the crowd, with an army of ushers opening a path as they slowly advanced across the spacious lawn. Also included in the royal party were a number of ranking military officers, their duty being to select a few from the encircling throng and present them to Elizabeth and her fiancé or to the King.

"Our midshipmen's group had long since dissolved, each seeking to get the closest view of the royal party. While elbowing my way into the path of the slowly advancing group, I noticed our captain had caught the eye of an ushering Air Force officer. This unexpected opportunity of meeting the Princess and her fiancé was not to be lost because of the intervening crowd. By a bit of fancy dodging and ducking and numerous apologies I was soon standing nervously with two other shipmates, waiting to be introduced to Elizabeth and Philip.

"After the presentation, their naturalness and friendly nature quickly put us at ease. Soon we were chatting gaily and even joking as if with an old acquaintance. Philip seemed extremely interested in the Academy, and we swapped a few tales of Dartmouth and Annapolis. When questioned about his class ring one of the first classmen slid his off and, handing it to Philip, explained the tradition behind it and its presentation at the famed June Week ring dance by his D.A.O.

"Not to be outdone by her fiancé, Elizabeth inquired about the class insignia worn on the

sleeves of the two upper classmen (mine still being quite bare from plebe year).

"Our talk, which lasted for 10 or 12 minutes, was finally interrupted by the adacting ushers, who realized we had more than tripled the usual allotment of time. With words of congratulation and good luck, we moved off into the crowd."

As if meeting Elizabeth and Philip wasn't enough, our guest continues:

"Later in this eventful afternoon, a few of us were able to penetrate the cordon about the other royal group with Queen Elizabeth and Princess Margaret Rose in the center. Upon being presented, two of us 'politely' proceeded to rescue Margaret from her seeming boredom. I was tempted to ask for a date, but not having experienced royal reactions to such a bold request, my courage failed me."

"Soon the Royal Family terminated their interviewing and sought refreshments under the awning of a spacious tent, similar to the many caterers' tents that bordered the lawn. Reports have it that the midshipmen carried out a like action with 'great boldness, fierce determination, and clever maneuvering.'

"The number of midshipmen who 'forgot' or 'misplaced' their raincoats was astounding—anything for a fast fleeting glimpse of the beautiful and ornate palace interior. On agreeing that 'Operation Buckingham' had been completed successfully, we 'shoved off,' armed with a story for our grandchildren."

Down to the Balmy Tropics

Within a week after leaving England we were south of the 30th parallel, basking in the tropical sun and watching hundreds of flying fish skimming along the Gulf Stream.

In the afternoons you saw only two types of working youngsters: those carrying ammunition and others firing the never-satiated guns.

By nightfall all hands were ready to gather aft near the movie screen and enjoy an hour or so with Hollywood's stars of the present and past.

Our theater was improvised and didn't have a ticket window. Our "inexpensive" seats were sections of the deck; the "reserved seats" were boxes and benches borrowed from the mess halls; and the balcony was atop the No. 3 turret or the roof of the steel projection booth, the only permanent fixture of our theater. Although we didn't have murals on all sides and "20° cooler inside" air-conditioning, we did have a glittering canopy of stars and the night-cooled trade winds.

The warmth of the Tropics once more brought our Sunday services up to the lan-tail from a confining chow hall below. Your

imagination may fail you if we say shipboard services are sometimes beautiful. Picture, however, this scene:

The spell cast by a humming organ, deep masculine voices, and the sound of the gentle swishing and lapping of waves falls upon you as you kneel to worship. Beneath the cloaked muzzles of 16-inch rifles stands your chaplain behind his lectern. Close by is his small portable altar. As he delivers a short, pithy sermon, a benign sun beams down from a clear blue sky. A light breeze cools your face. Your eyes catch a rolling destroyer to starboard. Again the choir sings a familiar hymn and the service is over (Plate XVI).

Before long *New Jersey* dropped her hook in Guantánamo Bay, Cuba.* We were permitted to go ashore in our "white works," a comfortable summer uniform distinguishable from an enlisted man's whites by the blue band around the top of the hat (Plate IV).

Leaving the fleet landing, we had our choice of two roads, our running east to the Navy recreation center and its ships' service store, the other going west to the marine post and PX.

At both facilities, ice cream, canned fruit, and 35-cent steak sandwiches were plentiful. Stores were well stocked, and smart lads who saved their cruise allowance could now take advantage of Guantánamo's bargains. Most of our gifts for the folks at home were bought here tax free.

During our first liberty the youngster class was introduced to Chief Hatury, a famed Indian rebel of early Spanish days, whose face (mostly nose) adorns bottles of Cuban beer sold on the station. There's a saying that "you can't beat the Chief—he always wins." After a few of his beers we understood why.

We Bombard Culebra, a Target Island

On our departure from Cuba we began gunnery practice in earnest. Now we were going to find out if all the hours spent on dummy shells had been worth while. For the first time the big 16's were to be fired.

Our target was Culebra, a small island off Puerto Rico reserved by the Navy for fleet gunnery practice. We commenced bombardment at 0930 one clear morning.

We sailed up and down our firing track riding our 3-inch and 16-inch shells into the beach. Control officers and range-finder operators kept a close watch on *New Jersey's* shooting as well as on the work of her sister and rival, *Hibronia*.

Shortly after noon, our mission completed,

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "The American Sugar Bowl," by Melville B. Venner, January, 1947.

"Secure from General Quarters" was piped brought out the ship.

That afternoon the Task Force rendezvoused and we steamed off. We were on the road luck.

Virginia Gives the "Welcome Back"

On August 12 the Virginia coast materialized out of the offshore mist.

As if trying to surpass European hospitality, the people of Tidewater Virginia went all out to entertain the midshipmen. Norfolk gave two grand balls.

Virginia Beach was swamped with midlles and their hostesses. Rare was the fellow who couldn't boast that he had been looking at the pigeons, including his own business, when a beautiful girl drove up in a shining convertible and asked, "Going to the beach?"

We devoted the last week of our cruise to night gunnery and submarine warfare. All men in the first class were dispersed among destroyers and submarines. The rest of us were assigned to antisubmarine lookout watches.

During the day the U-boats split up, five to each of the two battlerops, and simulated attacks on us. They fired dummy torpedoes set to run five feet below our maximum draft.

Many of us believed that spotting a periscope was an easy task. Experience revealed our error.

In establishing a position to fire her "fish," a sub raises its periscope only momentarily. Even if a gunner knows the scope's position, he has a difficult task picking out that "eye" among the whitecaps.

There were many tales in evening "hall sessions" of a lookout's spotting a submarine by first detecting a torpedo speeding at his ship.

"Tor fish" travel about 45 knots, and their trail of air bubbles appears about 75 feet behind, depending on the depth. We were thankful they had been set too deep; otherwise, as many as 10 a day would have made direct hits.

We all came to appreciate the effectiveness of the Navy's underwater fleet. Show us the man who doesn't respect the torpedo speeding directly at him!¹⁴

After sundown the 5- and 16-inch batteries were put to work firing on target sleds towed by tugs.

These night-firing exhibitions were spectacular and, in fact, enjoyable once we got used to the roar of the 16's and the ear-splitting cracks of the secondary battery.

Parades began with the 5's firing star shells to light up the target. Then, its turrets trained, the main battery let go with 2,500-pound calling cards.

These weighty shells are sped by brilliant orange flames flashing 30 feet beyond the muzzle. Instantly, light vanishes, and the ship is left in darkness. As your ears recover, you hear the shell cleaving the distant atmosphere. The sound resembles the swoosh of a jet plane. Long after firing has ceased, you remember the shell's weird moan.

Midshipmen Get Air Training

Meanwhile the second classmen, quartered aboard the carriers, were getting instruction in naval aviation. In Avengers and Hell Divers they made observation laps lasting two to three hours. The purpose of these flights was to acquaint them with air power's role in naval tactics.

Riding rear seats, they were in constant communication with their experienced pilots, who gave them a play-by-play description of what was going on. Before each flight they were briefed in ready rooms along with the pilots, and on landing they returned to get a full explanation of the maneuvers.

Four days out of Annapolis one plane went into the drink. Within five minutes pilot and midshipman were picked up by a destroyer, while an anxious helicopter hovered overhead.

Between firing runs we cleaned, scrubbed, and painted *New Jersey* to make her shipshape for homecoming.

Hetelofore, first class had told us, "Scrub that hatch," but now our class ran the show. Classmates served as division officers and bosun mates.

Realizing that leave was but a few days away, we sang lusty chanteys as we worked. Decks and brass were never cleaner.

Jersey's Anchor Rattles "Home"

As the Task Force steamed up Chesapeake Bay, we packed our gear and said "So long" to the Navy regulars who had been our shipmates.

We appeared off Annapolis the night of August 25-26, and, as tradition demands, the senior class's "anchor man" (who has the lowest standing) knocked open the pelican hook of the anchor chain. The huge links rattled across the forecable and the hook splashed home.

Dawn lit the Chapel dome and the radio towers on Greenbury Point. Motor launches put out to meet us. Midshipmen's cruise was over.¹⁵

¹⁴ See "Your Navy as Peace Insurance," by Fleet Admiral Chester W. Nimitz, *NATIONAL GEOGRAPHIC MAGAZINE*, June, 1946.

¹⁵ For additional articles on the U. S. Navy, see "NATIONAL GEOGRAPHIC MAGAZINE Cumulative Index 1941-1946."



Chesapeake and Potomac Telephone Company—Annapolis, Md. (1900) Midway point Start of Tidewater Line
 (Caption text is partially illegible due to image quality)



THE LIBRARY, BOSTON, MASS., IN THE YEAR 1850. THE LIBRARY WAS THEN IN THE CARE OF THE BOSTON PUBLIC LIBRARY SOCIETY.



The following tables are taken from the report of the Committee on the Administration of Justice, published by the Government Printing Office, London, 1967.

[illegible]

At Home for Mother's Day

The Order of the Mother's Day is a very interesting and useful one. It is a very good one for the children to make and to give to their mothers. It is a very good one for the children to make and to give to their mothers.





When the Russians's Alaska Pipes, "New Water Pipes" and "All Water Pipes" Brought Aboard to the "Fun" to with Superiors.

From the Island. Some of the "Horse" Youngsters Learn the New Way, but These Boys Are Never Improved





From the Sky, an Officer Drops In on New Jersey for a Task Force Conference

Enterprising a helicopter crewed by the crew of the New Jersey, the helicopter was hoisted by the ship's hoist and lowered to the deck of the New Jersey for a conference with the Task Force Commander.



54 Summer's Classes Afloat: Topsides. Yeomansters Get a Lecture in Seamanship
The instructor, standing in the center, is giving a lecture on seamanship.

Reserve and Academy Men Team Up to Fix Their Ship's Position by the Sun
The crew of the ship, including the reserve and academy men, are working together to fix their ship's position by the sun. The crew is using a sextant to measure the sun's altitude and a chronometer to determine the time. The crew is also using a compass to determine their heading. The crew is working together to fix their ship's position by the sun.





USS ALBATROSS. A TARKENTINE. BUILT AT NEW YORK. BUILT AT NEW YORK. BUILT AT NEW YORK.

THE ALBATROSS WAS BUILT AT NEW YORK. BUILT AT NEW YORK. BUILT AT NEW YORK.



2022年10月10日

[illegible]

Given Insiders, 'Pinned by Soap Watch' Left, Train for Speed on a Monday-Sunday Morning

By the time the train is in motion, the passengers are already in a state of excitement. The train is moving at a speed of 100 miles per hour. The passengers are all wearing their seat belts. The train is moving at a speed of 100 miles per hour. The passengers are all wearing their seat belts.



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A-10 Joy Plane, Steered by Radar Give Noddies Practice in Antiaircraft Gunnery
 (Left) The plane is being steered by radar. (Right) The plane is being steered by radar.

Antiaircraft Use 100mm Gun to Shoot Overflying Enemy Jets. A-10 Gunner (Left) Has
 a 100mm Gun. (Right) The plane is being steered by radar.





Middlesex Week Up I learned that the 1st. Cavalry is to impress their Girl Friends



Along Jarrow's Guns Are Aligned the Hearts of Tishmore Men Are Bowed in Prayer
 The ship is the "H.M.S. Tishmore" and the men are the crew of the ship. The ship is a
 British ship and the men are British men. The ship is a British ship and the men are British men.



Scotland! The Highlands! A Boatload of Anticipation Approaches the Forth Bridge
 From the north side of the Forth, the boatload of anticipation approaches the bridge, the crowd
 looking on from the shore. The boatload of anticipation approaches the bridge, the crowd
 looking on from the shore. The boatload of anticipation approaches the bridge, the crowd
 looking on from the shore.



Yards and Store Exchange Vests. Liberty Bells. Home Landed Abolitionist. Home Landed Abolitionist. Home Landed Abolitionist.

On a Visit to a Mountain House, and the Valley of the Rhine

By J. G. Thompson, Esq., of New York. Published by J. G. Thompson, Esq., of New York. 1840.





Children and Servants in front of the Palace of the Prince of Wales

A full-length portrait of a group of children, including a boy in a dark suit and a girl in a green dress, standing in front of a large, ornate wooden structure, possibly a stage or a set.





Lads and Lassies Practice a Highland Dance on the Sod in King's Park, Edinburgh
 at a time when the people of the country were in the habit of dancing on the sods, and the
 sods were the only place where they could dance in the country.



Princess Wren, the Seaship, and Red, a V. Alderman, Texas, a Purpaw, Lesser
 The group is standing in a line, facing the camera. The background is a grassy field with some trees in the distance.



Midshipmen Love Photography—At Times the Cruise Resembled a Camera Club in Action. The young men were often seen with their cameras at hand, snapping away at the scenery and the other guests. A number of the pictures were of great interest to the crew.

Teacher Good Realizes
the American Vision
of Rural Teachers

There is a great many
things to be done in
the country. The
country is a big place
and it is a big place
to live in. There are
many things to be
done in the country.
The country is a big
place and it is a big
place to live in. There
are many things to be
done in the country.
The country is a big
place and it is a big
place to live in. There
are many things to be
done in the country.



At Bill's? What? Yes, why? Ladies As at Sunday, a Professor Rivers' Museum and no last year's birds
I have found out that the birds are not the same as last year's





U.S.S. *Rochester*, Commissioned in 1944, Moored Close to H.M.S. *Victory*, Launched in 1766
 A. T. Jones, 1944. The photograph was taken from the deck of the USS *Rochester*, which was moored alongside the HMS *Victory* in 1944. The ship is seen from the side, showing its long hull and gun ports. The yellow crane is a prominent feature on the right side of the ship.



On the Quarterdeck Lord Nelson Fell Mortally Wounded at the Battle of Trafalgar
 On 21st October 1805, the British fleet, under the command of Lord Nelson, defeated the French fleet, under the command of Admiral Villeneuve, in the Battle of Trafalgar. Lord Nelson was mortally wounded during the battle and died on 23rd October 1805.



A group of men in suits standing on the steps of the U.S. Capitol building.

U.S. Capitol building, Washington, D.C.

THE PORTLAND ACADEMIC BUILDINGS ON ALEXANDER STREET AND WARRICK LANE, PORTLAND, ME.
—The building on the left is the old building, the one on the right is the new building.





XXXII A "Pretender" Guards an Antiquary Company Through the Tower of London

A "Pretender" Guards an Antiquary Company Through the Tower of London. The "Pretender" is a man in a dark blue uniform with a red sash and a red hat with a black band. He is holding a small object in his hands. The Antiquary Company is a group of men in dark blue uniforms with white collars and white hats. They are standing in front of a stone wall.

A Sealer Man Queries a Police Officer about the Hard Fate of an Old Sea

A Sealer Man Queries a Police Officer about the Hard Fate of an Old Sea. The Sealer Man is a man in a dark blue uniform with a white collar and a white hat. The Police Officer is a man in a dark blue uniform with a white collar and a white hat. They are standing in front of a stone wall.



Sea Bird Cities Off Audubon's Labrador

By ARTHUR A. ALLEN

Professor of Ornithology, Cornell University

With Illustrations from Photographs by the Author

FROM vast reaches of the sea, bizarre forms migrate to feed on islands in the Gulf of St. Lawrence south of the lonely Labrador Peninsula, which John James Audubon more than a century ago called "wonderfully grand, wild—aye, and terrific."

Those adjectives still apply, as we discovered on a trip for the National Geographic Society to photograph in color the sea birds the great naturalist painstakingly drew and painted. Often he worked 17 hours a day to draw details of color and form that cameras now catch in split seconds.*

All traffic to the north shore of the Gulf is by boat in summer and dog sledge in winter, or by plane, since no roads reach into this wild region. Though actually a part of Quebec it is still often called Labrador as it was in Audubon's day (map page 759).

Kittiwake Homes on Sheer Cliffs

Leaving our station wagon at Rimouski, Quebec, on the broad estuary of the St. Lawrence River, Mrs. Allen and I boarded the steamship *Matane I* and arrived next morning at Seven Islands (Sept. 11), on this coast of storms. There we were met by Game Warden Ben Bijood, who had instructions from Ottawa to take us to the bird sanctuary on Carousel Island next by. Like everyone else on the coast, he went out of his way to be helpful.

It was June and a new generation of birds was just emerging. On two of the vertical cliffs facing the sea we found 300 nesting kittiwake gulls.

Kittiwakes derive their name from their three-syllable call. About the fishing banks they are among the most familiar birds, especially in winter. Then they often assemble in thousands and are known as "winter birds." They never venture inland, however, and are rare even about the harbors, where they are called "offshore gulls."

Unlike most other species of gulls, the kittiwakes always select narrow shelves on sheer cliffs for their homes and build substantial nests of seaweed which will not blow off in the storms that so often batter the rocks below.

Landing at the foot of the cliff in the lighthouse keeper's boat, we fixed up a blind on a ledge about 20 feet from the nests.

Luckily, the birds paid little attention to the blind. Soon after the boat disappeared, they

came back, and I was able to observe them at close range. Their dark eyes gave them a much gentler expression than the pale-yellow eyes of other gulls on this coast, and their small black feet were likewise distinctive.

Day-old youngsters, visible in some of the nests, were covered with dusky pale-gray down without the dark spots that are so conspicuous on most young gulls.

My contemplation of the home life of these interesting visitors from the high seas was suddenly interrupted by a gust of wind that caused the blind to creak. In my efforts to hold it in place, I felt one foot slip from the ledge and had a momentary vision of camera, blind, and photographer plunging into the sea thirty feet below.

It proved fortunate that we made photographs the first day, because thereafter we had high winds or fog which would have made the approach to the cliffs most dangerous.

On Carousel Island there was also a colony of some 1,100 herring gulls. A few great black-backed gulls, or "sail shebacks," and a couple of hundred razor-billed auks and black guillemots were incubating their eggs in the numerous fissures in the rocks. About 150 eider ducks were breeding on the island, and more than 300 double-crested cormorants could be seen nesting in the tops of the dead spruces on the highest part of the island.

Miss the Boat and You Wait a Week

From this lonely rock of whirring wings and raucous, haunting cries, we returned to Seven Islands to catch the steamship *Sable Isle*, scheduled to dock the next morning at 6 on its way to Harrington Harbour.

* Dr. Allen, a pioneer in color photography of birds, is making a comprehensive series of color plates of the principal species in various sections of North America under a grant of funds from the National Geographic Society. One hundred and nineteen of his remarkable color photographs of birds have appeared in previous issues of the *National Geographic Magazine* as illustrations for the following articles: "Birds of Timberline and Tundra," September, 1946; "Sights and Sounds of the Winged World," June, 1945; "Teasing for Birds with Microphone and Color Camera," June, 1944; "Birds on the Home Front," July, 1943; "Ambassadors of Good Will," June, 1942; and "Snapping Birds with a Color Camera," June, 1940, all by Arthur A. Allen. Dr. Allen's contributions to the *National Geographic Magazine* also include "Hunting with a Microphone the Voices of Vanishing Birds," June, 1937.

Because of the wind we saw few birds in the spruce woods behind the village. But ruby-crowned kinglets, fox sparrows, redstarts, and yellow-bellied flycatchers were not uncommon; and along a sandy ridge covered with spruce and scattered jack pines we found a pair of yellow palm warblers, as Dr. Harrison F. Lewis had promised us we should.

It was Dr. Lewis who first introduced me to this coast in 1928. Then Chief Federal Migratory Bird Officer for Ontario and Quebec, he had explored the north coast for sites for sea bird sanctuaries in 1925, as provided for by the treaty of 1916 between Canada and the United States for protection of migratory birds. His successor, Dr. Oliver H. Hewitt, was awaiting us at Harrington Harbour.

Not at 6 but at 4 in the morning, Mr. Blouin rushed to the inn with the news that the *Solir Isle* had already docked and probably would stay only 15 minutes. We were dressed and had moved our 12 pieces of luggage to the pier in 14 minutes and 55 seconds.

This was our first taste of the advertised "vagabond cruises" along the north shore. Because of whims of wind, fog, and tide, no definite schedule of arrival and departure can be maintained, and the passenger who isn't ready will wait a week for the next boat.

Once aboard, if he is lucky he gets a cabin, but if there are many passengers—and there often are—he may have to be content with the dining saloon upholstery.

Decks are crowded with oil drums which, though empty, permeate the air with the odor of seal or cod. At his destination the "vagabond" is as likely to be cast ashore in the middle of the night as at noon, and he may walk down a gangplank in a dignified manner or climb down a ladder into a bobbing dory.

After braving the chill blasts that whipped off the icebergs to the east, we found a warmish spot in the lee of the pilothouse where friendly fumes from the kitchen poured out of a ventilator.

Montagnais Indians Crowd the Wharves

Most of our fellow passengers were fishermen and small businessmen traveling from town to town. But some were sportsmen heading for clubs on the Moisie, the Gashout, or other famous salmon streams, and still dreaming about the big ones that got away last year.

Others were young men taking summer jobs with construction companies. A few were girls returning from school or employment in Quebec and Montreal and looking forward to the simple pleasures of their rugged homes.

On the boat was an interesting admixture of

Anglican ministers and Catholic priests. Their flocks included many Montagnais Indians, who crowded about the wharves to shake the clergymen's hand and hear his words of encouragement—the men white-jacketed and grout, the women bulky and ungainly in their voluminous multicolored petticoats and tight bodices.

Invariably the Indian women dressed their black hair as of old, rolled into buns over their ears. Aop this coiffure they perched their time-honored but unbecoming liberty-bell hats, broadly striped with red and blue.

Despite their uncomfortable costumes, their bowlers and swinging hips, the women are remarkably hardy. Women and children travel with the men up the rocky streams for hundreds of miles in late summer to trap all winter in the interior.

They all come out in the spring to trade their furs at the Hudson's Bay posts for the next year's provisions, but during the summer they loiter about the posts, do a little fishing, repair their canoes, and rest up for the next trek into the interior.

Cold Breath of the Labrador Current

To the eastbound traveler along the coast, the effect of a branch of the cold Labrador Current, which flows through the Strait of Belle Isle, becomes more and more apparent. Trees become stunted and disappear; rocks with a deep covering of reindeer moss, currant-berry, and other creeping or sprawling vegetation take their place.

The shore for hundreds of miles is broken up into innumerable islands surrounded by waters studded with rocks and reefs which plague the mariner.

Trees, sometimes of fair size, grow along the sheltered stream valleys on the mainland, but elsewhere, for every acre of trees, there are a thousand acres of moss stretching far inland until the effect of the Labrador Current is finally lost.

The interior is heavily forested, but adjacent to the cold water Arctic conditions prevail; deep snowdrifts lurk behind the sheltering cliffs, and icebergs float with the current in mid July.

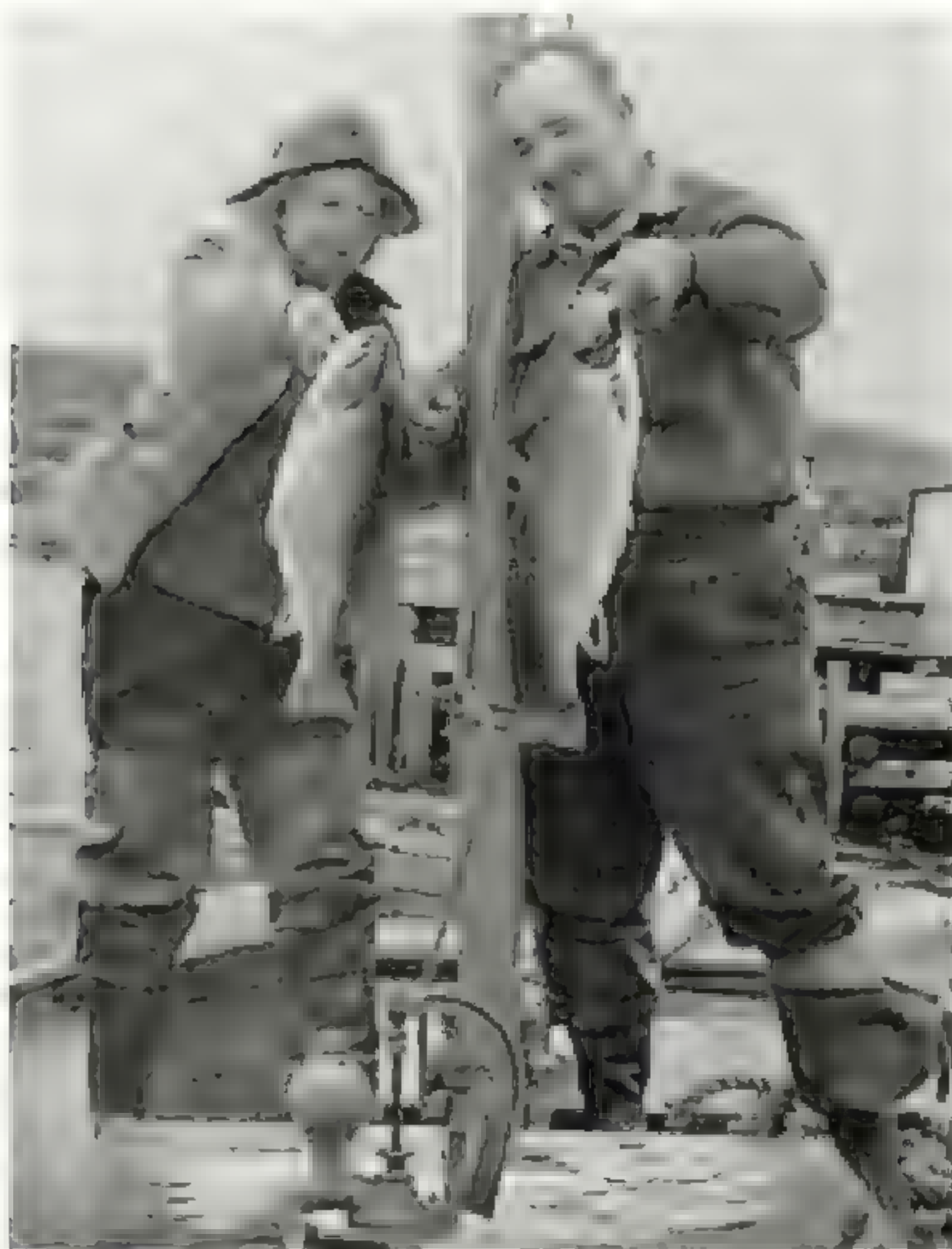
We reached Harrington Harbour in two days. There we were met by Dr. Hewitt and his boatman, Samuel Robertson V, in the painted boat *Aha of Ottawa*, 38-foot cruiser built on the coast.

The Robertsons have lived at La Tabatière since before Audubon's time. Audubon tells of meeting with Samuel Robertson I at the same spot in 1833. So little has been the change of blood in the population of this coast



As if a Teacher Mistress Had Burst, Ginnet's Cove's Bonaventure Cliffs with White

On the left, the old tower of the Bonaventure Cliffs. A small, dark, vertical object, possibly a person or a structure, is visible near the top center of the cliff. The background is a hazy, light-colored sky or sea.



A. J. C. B. B.

"Comparisons Are Offense," Says the Author's Wife

For two years Lisa Allen twitted her husband for failure to match her European adventures with a visit to the St. Lawrence River. Then he landed his *Yellowstone* and *Yellowstone* journey. On the next day he hooked a monster *Yellowstone* but his tackle snapped and he "guit to me" the fish.

Not at Sea but in and he or a *Yellowstone* in nearly every port we visited. He himself was as far as possible from rocks and reefs from Har-
 mony to the *Yellowstone* is his own de-
 yard, for at the age of 11 he had started carry-
 ing the mail with his father by boat in summer
 and by dog team in winter.

Seeking Birds in Wind and Fog

It was now June 25, and for the next five weeks the four of us were to live snugly on the *Yellowstone* with all of our baggage and equipment—
 especially snugly for the last two weeks when
 we had two more passengers. Fortunately, no
 one suffered from claustrophobia, although our

heads became almost
 callused bumping the
 cabin roof, and we suf-
 fered miscellaneous
 bruises when the sea
 got rough.

Our first official in-
 spection was that of
 the St. Mary Island
 Sanctuary, about 15
 miles from Har-
 mony in the open gulf. Here
 wind and fog were all
 over, and when we
 found the keeper, the
 Libby's keeper and
 caretaker of the sanc-
 tuary, he told us that

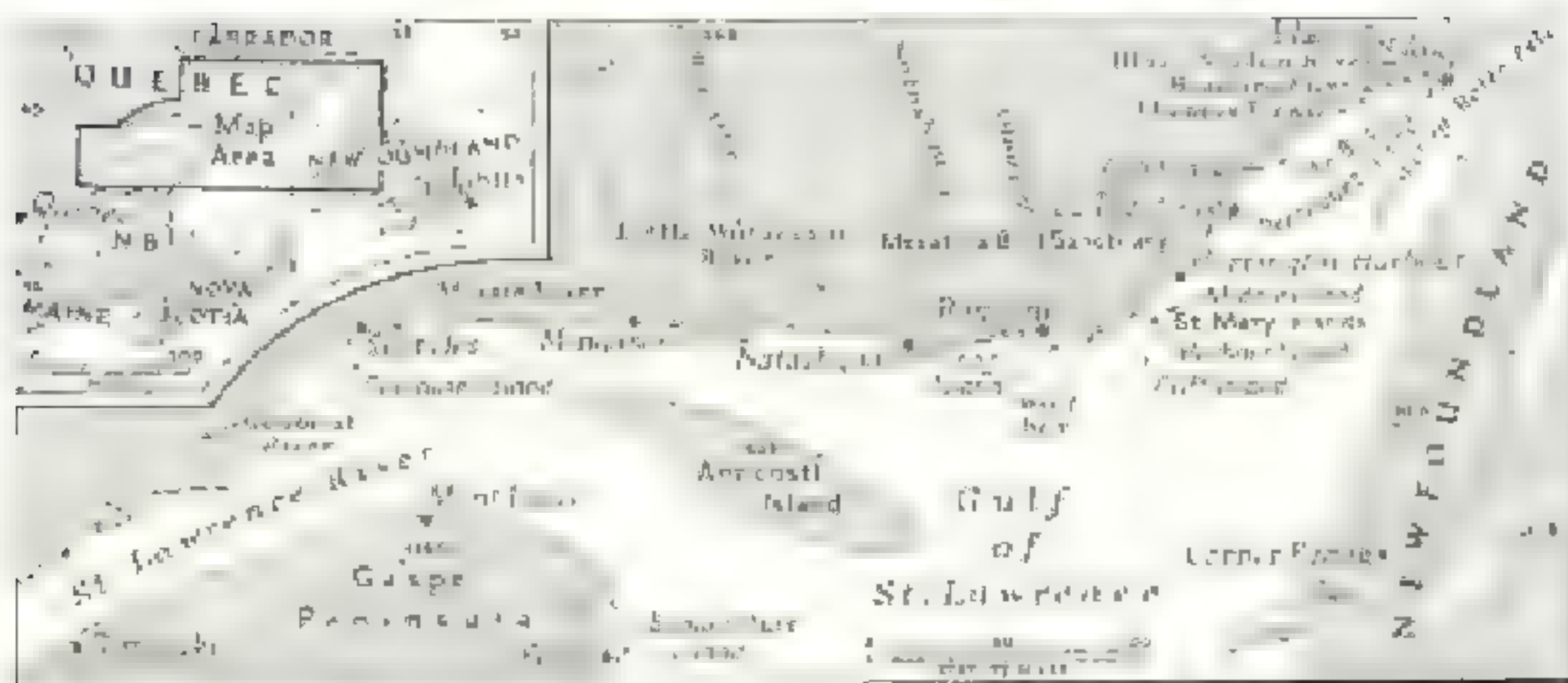
We had good
 weather the day of our
 arrival, but during the
 following week fog
 and high wind
 were almost continu-
 ous. At times we could
 barely see the shore
 from our anchorage in
 the narrow well-pro-
 tected harbor, and
 quite a few waves
 dashed up into the air as high as
 the outer rocks.

Working fast to seize
 the few hours of sun-
 shine, we explored most
 of the sanctuary. We
 saw the land cranes
 and the *Yellowstone* of the
 common *Yellowstone*
 and murrelets of the
 island, the red-tailed
 loons and the *Yellowstone*
 nests of Har-
 mony Island.

and the eiders, auks and puffins of Mill

Some species, like the *Yellowstone* and *Yellowstone*
 nests, breed in colonies. In the groups of *Yellowstone*
 which they have occupied since the *Yellowstone*
 records began. Others like the eiders and
 black *Yellowstone* breed more widely, and
 although they are often seen in flocks, they
 are usually paired.

The *Yellowstone* breed in narrow crevices in
 the rocks, the eiders in open spots of the
 tundra. Never more than one pair of red-
 throated loons occur on any of the small fresh-
 water lakes, and seldom more than one pair of
 great black *Yellowstone* gulls nests in a colony of



Journal of Interpersonal Violence 26(10)

Thousands of Sea Birds Call Quebec's Rock Island, For ruddy Shores "Home"

From Rimovael to Hlong Sablon the author took a summer's leisurely voyage. On the jagged cliffs of island sanctuaries he and his companions counted 99,000 nesting birds (page 77).

herring gulls or on a rocky headland. In all, there were 16,000 to 17,000 birds nesting in this sanctuary.

Year after year the murres, returning from the open sea, show up on their nesting ledges on the same date, and each bird apparently occupies exactly the same spot it used the previous year.

Murphy Returns Yearly to Same Spot

For ten years now, a single Braunkuh's nose has claimed tooth-til on a narrow shelf on Cliff Island facing the sea. Here he stands in the middle of a flock of common noddies—the tenth bird from the right and the fifteenth from the left. Storms may rage, but nothing budges him from this particular spot. Of course he leaves it to go fishing, but he returns soon to the same few square inches.

Ten years ago Dr. Robert Johnson, at that time a graduate student at Cornell, banded a black gull chick that was incubating its two eggs in a deep crevice near the mooring in the harbor. When we inspected the crack this year too the bird was there again, for we could see a thin, very worn band on its little red leg.

We had an interesting time on Cliff Island with the European, or "common" cormorants. These are not common in the United States, since there are only three or four colonies of them on this continent. The really common cormorant of North America is the smaller, double crested species, which occurs in one or another of its races from the Arctic to the Tropics and from the Atlantic to the Pacific.

The larger bird, with white bordering its pouch and with a blue-black neck and breast,

was originally called the common cormorant because it was found also in Europe and Asia. Some of these common cormorants were still incubating eggs, but the majority had black, woolly young, a few nearly as large as their parents.

After I was safely hidden in a blind and my accomplices had disappeared over the ridge, the old birds returned to their nests all about me. Youngsters were clamoring for food but no meals were served during the next half hour. I began to fear that I might miss the amazing spectacle, for the fog, which already concealed the sea below me, began to rise and obscure the birds.

Cornstarch Cafeteria

At last, however, one little brood that had been stretching up their necks with quivering patches began to get results. What a party it was, as both father and mother opened the three-foot mouths and let the children dive down their throats for dinner (page 760).

During this grotesque performance the laughing gulls hovered low overhead or darted into the melee whenever one of the youngsters brought out a fish too large for it to swallow.

Disoriented in the antics of the cormorants, I turned and we had to start back to Harbour Island in fog so dense that we had to depend on the footman for general direction and trust to luck to avoid two dangerous shoals. Our thoughtful host became alarmed about us, however, and we had covered scarcely a mile before the chugging of Fred's motor told us he was on his way to guide us among the dangerous rocks. By the time we were back in our harbor, it was dark.

More recently the missions have invited teachers to help in developing new home industries, thus adding to the meager income of the families. Now many of the people devote the long winters to wood carving and making hooked rugs, for which the mission finds a ready market. Most of the doctors and teachers volunteer their services, and even a college student has passed a soul-satisfying summer at one of the Greenfell Missions.

La Tabatière, Six-family Town

Our next stop was planned for the mainland at the six-family community of La Tabatière, home of the Robertsons, in an area of stunted Hudsonian forest surrounded by Arctic tundra. Theoretically, such a sheltered area with its innumerable "edges" of woods should have supported an abundance of wild life, but actually birds were scarce.

Fox sparrows and white-crowned sparrows were the most numerous; Lincoln's sparrows and gray headed thrushes could be seen occasionally; Wilson's and black-gull warblers were not uncommon, and there were scattered Tennessee warblers, mourning warblers, and yellow-bellied flycatchers, which we know as transient visitors in the States in their passage to and from their winter homes in South and Central America.

There were, of course, some robins and juncos, a few red-breasted nuthatches, winter wrens, ruby-crowned kinglets, white-throated sparrows, and yellow warblers, so common much farther south, and a few flocks of cross-bills and pine siskins, already finished nesting. The birds were so scattered, however, and the tangled spruces made observation so difficult that we were lucky if we found one or two nests in a morning's hunt.

Although offered rewards, the few children living about the harbor could give us little help. Their eyes evidently were trained for the sea, and the only land birds they knew at all were the dooryard "stragglers" (white-crowned sparrows), "brown bobbers" (fox sparrows), and "brown diggers" (gray-checked thrushes). We had to content ourselves with studies of the fox sparrow, gray-checked thrush, and Wilson's warbler.

Before leaving La Tabatière we enjoyed a fine dinner at the comfortable home of our boatman's parents, Mr. and Mrs. Sam Robertson IV. Although isolated from centers of culture and industry, they keep in touch with the world of affairs by radio, and the mail-order houses enable them and their scattered neighbors to enjoy many modern conveniences.

The mail boat, piloted by Sam's brother, arrived while we were there, piled high with

bags of parcel post, but with only half a bag of first-class mail for the whole coast from Harrington to Blanc Sablon.

From La Tabatière a few hours' run took us to Gull Island in St. Augustine Sanctuary and a fine colony of ring-billed herring, and great black-backed gulls, as well as eider ducks. A little flock of green-winged teal and a few black ducks were frequenting one of the ponds; also a couple of least sandpipers and a greater yellow-legs. But none of these were nesting.

I was surprised to find eider ducks nesting within 15 feet of black-backed gulls' nests, since the birds apparently are ancestral enemies (Plates VII and VIII). The gulls never miss an opportunity to steal an egg or carry off a young eider. Indeed, the saddleback is the most unpopular bird on the coast because of these depredations.

Even among the fishermen, who, formerly at least, were accustomed to taking the eiders' eggs for their own use, the sight of a saddleback doing the same thing arouses anger; when they see one pounce on a young eider they become quite vindictive. Often it is their own approach that gives the gull his opportunity, for the boat frightens the mother away and leaves the ducklings unprotected.

The great black-backed gulls have learned to watch for just such eventualities, and many times we ourselves, after passing a family of eiders and seeing away the mother, looked back to see a pair of blackbacks harrying the little flock. If the mother did not promptly return, the youngsters would keep diving until exhausted and then were easy prey.

Eider Routes a Black-backed Gull

I set up a blind one morning near a black-back's nest and some ten feet from an eider's nest, and awaited the arrival of either bird.

The eider came first, flying to a small pond about 100 feet from the nest and walking the rest of the way. Evidently she did not like the blind. She sat down on the rocks about 15 feet from her nest. Because of the location of the gull's nest on the end of a little ridge her enemy's natural approach was past this rock, unless he flew directly to his nest.

Finally the gull circled about, landed beyond the duck, and started to walk past the rock where the duck was contentedly resting.

Never have I seen greater fury than the bristling rage that greeted this gull when he started to enter the eider's territory. All her feathers stood on end, her bill opened, she made jabbing motions in his direction, and then she flew at him with such force that she bowled him over.

Picking himself up, the gull grabbed a small stick in his bill and advanced toward the eider; but once again she ruffled her feathers and pointed her bill, bringing him to a dead stop. Wanting nothing more to do with such a vixen, he turned tail, walked away 25 feet, and nonchalantly sat down. There he sat for an hour.

I was obviously threatened with a stalemate. At last, however, the gull took wing, circled about, and dropped beside his eggs in an evidently unaccustomed position. He kept twisting and turning, but could not decide how to approach the eggs from that side.

What was the final outcome of the placing of the two nests in such close proximity I never learned, but I left with a feeling that, when man does not interfere, the eiders can take care of the saddlebacks all right. Undoubtedly they were doing so long before Leif the Lucky sailed the Labrador coast while searching for Vinland.

The Basin a Kettle of Fish

From Gull Island we continued our cruise in the *Alca* to Thomas Tickle, a beautiful steep-sided harbor which lay that night under a full moon. The next morning a rough run of three hours brought us to Bradore Bay. How that boat did roll! We were glad to get into the sheltered retreat of the basin, even though it was the rendezvous of fishermen having a successful season with their cod traps.

One of the schooners, we were told, had taken 100 quintals of fish from its net one morning and found it equally loaded at night. A quintal is 112 pounds of salted, sun-dried codfish; it represents about 50 six-pound fish.

In other words, the fishermen took approximately 10,000 six-pound fish from their net in one day. That was, of course, unusual, but catches of 3,000 fish were frequent during our stay.

Stay we did for five days, because when the wind was not whipping up the sea, the fog was so thick that it would have been madness to venture forth. There was nothing we could do but read or write, but the fishermen had a full-time job and went right on cleaning their fish into the harbor.

The Basin is very shallow and the water is flat. For acres about us the bottom was white with the brans and viscera that poured overboard in an endless stream from the three schooners anchored near by. The livers were collected in hogsheds to make vitamins for pale people, and the fish themselves were split, salted, and stored away in the holds, to be dried later at Harrington or in Newfoundland at the home ports of the fishermen.

About the Basin are a couple of "summer homes" with their stages and fish sheds, but most of the fishermen come here from elsewhere, as they or their ancestors have been doing since long before Audubon's day. The two fish sheds had bars nailed across their doors and white flags flying from their roofs, indicating that they were full.

Elsa took one look at the bottom of the harbor and two whiffs of the air before she again sought refuge in the *Alca's* cabin.

But the Bradore Bay area had its pleasant side also. For though the weather prevented moving the *Alca*, we could go ashore in the dinghy and tramp the island in which the Basin is located, or row the male to the mainland, when it was not too rough, steering by compass when we could not see through the fog.

We found a little trout stream with a couple of youngsters fishing. My first cast hooked a richly colored 10-inch speckled trout; and the boys, who were using improvised lines and bits of bacon for bait, yelled out, "That's a good luck you've got, Mister."

It didn't take long to fill the creel with small trout up to 15 inches in length, and we felt a bit set up, thinking back on the panny 7- and 8-inch ones at home. We did not know what was in store for us at our next stop at Blanc Sablon, where we were again marooned for three days.

The Blanc Sablon River is a much larger stream, stemming from a fair-sized lake some two miles inland and meandering down through the scrubby spruces and muskeg over a sandy bottom to the sea. The tide is not strong at this point, but it did not look like a trout stream to me. Nevertheless, we were shown a pool near the village, where it was said the fishing was good at the change of the tide.

Sure enough, when the stream began to flow out with the tide and the water was littered with bits of seaweed, the trout began to rise—not 10- or 12-inch fish but 2- and 3-pounders. Elsa hooked a 4-pounder and he careful matelassier slid it up on the sandy beach without a landing net. For two hours she lured it over me. Then I hooked one that weighed four and three-quarter pounds on the Hudson's Bay Company scales, and my ego returned (page 758).

Fish Too Big—Quits Fishing!

The next day the storm continued, and Ole Hewitt and I explored the river as far as the lake. On the way back we discovered a small pool, at the foot of the first rapids, in which lay a half dozen of the largest fish I had ever seen in a trout stream. They were probably salmon, but I shall never know, because my



Whether to Sit and Warm the Eggs or Stand and Face the Camera: That Is the Question
 — The bird in the background was posing when the bird in the foreground was
 also posing. A lot of time is taken to pose for the camera.



In 1894, John and John, Jr., of the New York and New Jersey
 Telephone and Telegraph Company, were the first to use the
 word "Telephone" in their name. The company was then known
 as the New York and New Jersey Telephone and Telegraph
 Company. The word "Telephone" was used in the name of the
 company because it was the first time that the word had been
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 York and New Jersey Telephone and Telegraph Company. The
 word "Telephone" was used in the name of the company because
 it was the first time that the word had been used in a name.

"The 'No Nests' on Adventure Island, off Cape Perpetua. Gannets and their young blanketed the ground like snow.





ESTABLISHING A COMPLEX NEST IN BENTONVILLE - THE NEW YORK SKYSCAPE CITY

THE NEW YORK SKYSCAPE CITY IS A NEW YORK SKYSCAPE CITY. THE NEW YORK SKYSCAPE CITY IS A NEW YORK SKYSCAPE CITY. THE NEW YORK SKYSCAPE CITY IS A NEW YORK SKYSCAPE CITY.



Tommy's Beach, Port Louis, Cedros, Early Stage Cliffs on the Ground Floor

Photograph taken by the author during a field trip to the island of Cedros, Baja California Sur, Mexico, in 1991. The photograph was taken from the shore of the island of Cedros, looking towards the mainland.



ALAN HARRIS

ALAN HARRIS

Like Marble Statues, Berneseese Mountain Dogs Stand in Cold, Motionless Dignity

ALAN HARRIS
 ALAN HARRIS



3. **What's Your Source?** The Red-throated Loon, by David Charles Walder. *For the first time in 100 years, Red-throated Loons have been seen in the area around Portland, Maine. This is the first sighting in 100 years.*

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1

Minerva Child Placed In Foster's Late Her Unborn Children's Home will Open
 a new home for the children of the poor, and will be open to the public
 on the 1st of the month of the year 1880.





Wings stretched, head waving side to side, a glimmer (left) shows the love
nest in the background. American eagle. The glimmer is the love nest in the
background. (Color photo) (Color photo) (Color photo) (Color photo) (Color photo)

Green Backbanded Gird, the Atlantic Ocean Nurses & Brood of Little Buccaneers

11. 1997年12月1日以前，在《中华人民共和国民法通则》施行期间，因侵权行为造成他人损害的，适用侵权行为地法律。



tackle in my inexperienced hands was too light for them.

The first one took the same fly that had landed the big trout the day before. He started up the rapids some ten yards until I knew I had him well hooked.

What I should have done at this point I do not know, for the fish certainly had things his own way. With a rush he cleared the water—a yard long if he was an inch! My only heavy wader parted in the middle. For the first time in my life I quit fishing because the fish were too big!

The following day the weather cleared somewhat and we were able to see the northern tip of Newfoundland across the 20-mile Strait of Belle Isle. We headed back toward Perroquet Island in Bradore Bay Sanctuary, easternmost of all the sanctuaries.

A cod net was anchored a couple of hundred yards offshore, and puffins in a large flock were having an amusing time balancing on the floats. We feared for their safety, but when we circled the net we could find only one bird that had become entangled.

A worse tragedy had befallen a half-dozen of the birds that had ventured into a seal hunter's shack from which most of the roof had blown off. Apparently the door had closed while they were inside, and they could not rise abruptly enough to fly through the open roof.

Ollie Hewitt estimated that 48,000 puffins were nesting on this island which for hundreds of years has been honeycombed with their burrows. But on the day of our visit most of the birds were away fishing or incubating in their burrows; no more than two or three thousand were in the water about the island.

Puffins Have Big and Little Poes

While waiting in a blind for the return of the puffins, I became unpleasantly aware of armies of ticks crawling around the rocks, apparently waiting for the same birds that I was waiting for. We became well acquainted, if not intimate, during the ensuing wait. I have often counted the minutes while waiting for a tardy friend, but this time I counted the ticks, and if someone had told me there were sixty ticks a minute, I could readily have believed it.

How the puffins have survived the attacks of these hordes of bloodsuckers through the ages, and, indeed, how the ticks can thrive in this Arctic climate, is difficult to understand.

Nor are the ticks the puffins' only enemies. When Audubon visited Bras d'Or (as the bay was called in 1834), his son John collected a pair of gyrfalcons whose nest revealed remains of puffins. From my blind I watched a pere-

grine falcon strike down one of the puffins near its burrow, and before we left the island we found evidence of six other fresh kills.

The sanctuary is well protected now from 'eggers,' but the natural destruction of these charming, quizzical little birds continues and keeps them from overpopulation.

Many razor-billed aunts and common mares were nesting under the gigantic jumble of stone slabs that line the shore, while on top of the island were several pairs of horned larks and pipits. Elsa found a beautiful pipit's nest, with six brown eggs, built in a curious triangular cavity in the reindeer moss atop a small boulder.

As the weather again became threatening, we left this interesting island and headed back to St. Mary Islands. The numbers of gannets cruising back and forth seemed to have increased since we traveled eastward. We heard Hudsonian curlews passing overhead, already started southward on their fall migration.

Black Flies a Scourge at Mecatina

At Mecatina Bird Sanctuary the black flies were unbearable. In spite of our efficient deterrent, they attacked our eyelids and ears and crawled down our necks wherever we neglected to smear the fly dope. At St. Mary Islands, however, they were comparatively scarce.

Here two other passengers joined us: Ollie Hewitt's brother-in-law, Tom Barry, an ardent fisherman looking for a rest from his strenuous paper business in Madawaska, Maine; and Louis Le Mieux, a student at Laval University, Quebec, who had been left at St. Mary Islands to study the great hump-backed gull.

The following day Ollie and Tom went jigging for cod while Elsa and I photographed guillemots. Ollie explained to Tom that the harder he jerked the line, the larger the fish he would catch.

Tom gave the line a mighty tug and hooked one of the largest cod caught on that part of the coast—80 pounds, ten times the weight of the average cod.

With six on board we scarcely rattled around, even when the sea was rough. Two had to sleep on the tiny deck and pray it would not rain. Drying out sleeping bags was next to impossible.

Continuing our journey westward, we alternated bird islands with trout streams, putting in the good days in blinds with the birds and the lousy days with the fish.

Between Wolf Bay and Romaine is the Fog Island Sanctuary, low-lying rocks exposed to the storms of the open Gulf. Landing here is often dangerous or impossible. We were



On the Downstroke a Robin's Feathers Overlap and Grip the Air

On the upstroke, the high-speed camera shows, they open by turning each wing (page 73). These sleeker feathers are too young to have acquired good vision. They do not recognize the home-coming parent until his feet have touched the nest, a bowl of mud, grasses, etc., and stalks just outside the author's window. At the last they fly up and take note no longer.

lucky in having a couple of fairly quiet boats so that we could visit a colony of murres and cormorants nesting in a much more accessible place than most, on broad, shelving rocks where we could easily walk among them.

The young murres were now nearly one-third grown and about ready to go to sea. Although they nest in dense colonies (Plate II), the murres, like the auks and the puffins, are rather solitary during the rest of the year. When the young are two or three weeks old, each family with its one chick goes off by itself to the open sea, where the youngsters finish growing up.

On an adjacent island was a fairly large colony of Caspian terns and ring-billed gulls (Plate I) with young now well feathered, wandering over the rocks, and even swimming out to sea.

The wind freshened while we were there, so we had to pull anchor and start for Romaine in a rough sea. Held up here for a day and a half by high winds, we explored the Olmané River, a beautiful salmon stream, and visited a campment of Montagnais Indians on high rocks overlooking the bay and village.

From Romaine to Natashquan is a dangerous part of the coast for small boats, with no



Arrow Points to the Abuse of Power While the Woman Is Vindicated in Copying Targets

[illegible]

So the four of us, Wang and I, went to sleep in the open air. It was a long time, however, and before dark slid into a beautiful little harbor at the Little Watchisha River.

Expedition Counts 20,000 Birds

At Mungan, which we reached the next day, we were cordially welcomed by Lt. Col. E. P. Kern, of the U. S. A. Forces, who built and operated the modern airport there. Mungan was an important landing field on the main route from the coast of Bay Labrador, and thence to Iceland.

Mr. Hewitt's inspection trip was now com-

placed. We had a good all of the sanctuaries along this coast and counted 99,000 birds using them for resting their young. The 16,000 birds now be put over the winter. Sam Robertson would return to the Tabat one and Collie Hewitt to the other. I thought I could check the birds. Perhaps I should be going to the coast.

What a forest of tall, straight trees, from Audubon's Landing to the way out one takes a long straight drive of about a few miles. In the woods are some excellent hayfields, corn fields, and fields of clover, treweed and alfalfa, and a few fields of cedar, and the way is beautiful.

Thrifty homes, neat villages, horses, cows, sheep, and all those things which we had not seen for over a month enchanted us after the wild north coast. We were bound for picturesque Percé and Bonaventure Island.

Lying two miles offshore, Bonaventure Island presents to the sea a series of ledges as its soft rough granite rock heaves off in huge blocks during winter (p. 757). These ledges, some time immemorial, have been the summer home of the strange and spectacular sea birds known as gannets. As large as some geese, they are snow-white in plumage, with black tips to their wings and an orange-buff wash to their heads (Plates III-VI and VIII).

Not shy, the gannets permitted close ap-

proach and proved to be the answer to a bird photographer's prayer. Their black-faced youngsters were still covered with long, fluffy white down which gave them the shapeless appearance of giant powder puffs with black handles.

Gannets spend the greater part of the year on the open sea, plunging like animated javelins from high in the air at the luckless mackerel or other fish that dares venture close to the surface. As they glided past us at the edge of the cliff, they turned their heads and surveyed us with a cold gray eye encircled by blue. They gave an impression of abstract power that is perfectly at home in storm or fog or whatever the wild sea has to offer.

A New Light Dawns on Bird Photography

IF ALL happened so quickly I could not see what occurred; yet here it is before me as clear as the printed page.

First I had heard the distant call of a female Cooper's hawk and seen the answering excitement of her youngsters six feet in front of the blind. A darting shadow, a flash, and the mother bird stood there glaring at me with fire in her eye. One foot grasped the branches of the synthetic nest we had built at the base of the tree; the other held a plucked bird.

But in that instant I saw that I had no chance of seeing it close. I could not tell how far her foot was extended as she approached, or whether her talons were withdrawn or fully extended. I did not even notice that she had food in her bill. I might have supposed she carried it in her claws, for she certainly had it in her foot when her image finally faded on my retina.

Speed Flash Reveals the Unseen

A little experience with the speed-flash camera had trained my fingers to press the shutter release at precisely the right instant, so that the resulting flash of 1/5000 of a second's duration occurred when the image of the bird was passing the middle of the film. And behold, here is the whole story as I should like to have described it, and as you can now see it for yourselves in natural color: the frozen action of a predatory hawk returning to her young with a plucked bird in her bill. (Plate XIV).

Caught is the look of expectancy and hunger in the eye of one of the youngsters; one sees the strength in the pinions of the old bird,

and the powerful talons reaching out to grasp the nest. The colors are natural and true.

A few years ago we would have branded such a photograph a "nature fake," impossible for any camera to produce, but today it is fast becoming commonplace.

Dr. Harold E. Edgerton, of the Massachusetts Institute of Technology, first brought to the attention of eager naturalists and wildlife photographers the wonders of the new high-speed flash apparatus with his book *Flash!* and later with his marvelous hummingbird photographs in the NATIONAL GEOGRAPHIC MAGAZINE for August, 1947.

Dr. Donald R. Griffin showed the possibilities of Edgerton's apparatus in photographing bats for the July, 1946, NATIONAL GEOGRAPHIC, and Ernest P. Walker and Edwin L. Wisherd used a similar portable speed flash in making the phenomenal photographs of flying squirrels in the May, 1947, NATIONAL GEOGRAPHIC.

My Cooper's hawk project was one of several interesting experiences during the season of 1947 when I applied the new light to old problems in bird photography.

Steve Eaton, a graduate student at Cornell, found the hawks' nest 65 feet up in a white ash tree in a dense wood lot about ten miles north of Ithaca, New York.

The tree was the tallest in this part of the woods, so there was no possibility of placing a blind in an adjacent tree.

When the eggs hatched the first of July, it occurred to me to test a new method of study which, if successful, would permit us to get a more or less complete record of what and how a Cooper's hawk feeds its young, and to



Papa Opens the Shutters of His Own Venetian Blind (Page 778)

On the wing's upstroke each flight feather turns an edge to minimize resistance of the air. A racing oarsman uses the same technique in "feathering" his oar.

reveal each rapid action by high-speed flash photography.

Accordingly, with the help of an expert climber, Paul Shepard, a student in the summer session, I built a dummy nest in a bushel basket and hung it beneath the real nest when the young were about five days old.

The hawks paid little attention to this innovation, so we transferred the young to the basket. A few hours later, the female flushed from the basket at our approach.

Next we built a blind on the ground, covering a framework with burlap. Then, during the next week, we lowered the basket ten feet a day until it was fastened to the trunk of the tree ten feet from the ground.

Perhaps the hawks were surprised at the rapid settling of the foundations of their home, but they continued to feed and brood their young with no apparent misgivings.

Later we successfully substituted for the basket a less conspicuous potato crate.

To complete our preparations, we rolled a stump against the base of the tree and built a dummy nest on top. Thus, when we were ready for our observations and photography, we had only to move the youngsters from the crate to this new bungalow in front of the blind.

Even when we added a 4-foot square, light blue backdrop behind the nest, the old birds continued to feed and the youngsters



Faker Robin de Blinders Shows the Opposite of What's True of a Scene

It is important to eat the food slowly and chew it well. It is also important to eat a variety of foods, including fruits, vegetables, and grains. In many cases, the organ is not working properly, and the patient may experience symptoms such as bloating, indigestion, and constipation. To help the organ work better, the patient should eat a diet that is high in fiber and low in fat. It is also important to exercise regularly and to avoid smoking and drinking alcohol. If the patient is experiencing symptoms, it is important to see a doctor for a proper diagnosis and treatment.

by the [redacted] [redacted] [redacted] and
departed [redacted] [redacted] [redacted] the school
such as that of [redacted] [redacted]

Altogether, the experiment proved successful and in the resulting job of a wife there can now be no incidents in the home life of a hawk without the inconvenience it caused us and, incidentally, without the same degree of excitement or satisfaction.

"I wish to Ngai" with a Chickadee

We next turned our attention to a bird which is the antithesis of a Cooper's hawk—a friendly little chickadee with no allergies to people or to cameras.

"Don't close your eyes, Daddy," I admonished my daughter as we waited for photographs of the chickadee flying to her lips to take a moment from her teeth.

The first series of pictures we had seen were missed by tightly closed eyes. Though neither of us had noticed, at the same time, no matter how interested Iodily was in her, a friendly little bird perch on her chin, she unconsciously closed her eyes when she saw it approaching her face.

The camera had caught all the excitement and anticipation on the face of the child, and the Dolly had reacted in a most natural, happy response.

So this time I constantly reminded Dolly to keep her eyes open. With conscious effort she partially did so, giving added charm to the photograph of a truly wonderful experience—that of meeting a wild creature face to face and looking into its eyes. Dolly poses with a natural expression of confidence (Plate XI).

An ordinary robin provided a real test of the new speed flash for a study of wing and feather action in flight. The bird had very considerably accepted for its nest site a movable shelf we had fastened to the laboratory window casing.

When the young were well grown, we lowered the shelf to a convenient height from the floor, fastened a blue backdrop behind the nest so that the photographs would not appear as if made at midnight, and set the sealed-lead flash tubes at the right heights and angle inside the laboratory.

Color film is so slow that the lens diaphragm must be set at F5.6, even with the lights two feet from the subject; so there is very little depth of focus. Indeed, one cannot get wings and body equally in focus except when the wings are held straight back (Plate XII).

Black-and-white film, however, provides sufficient speed to use a stop of F.22, and the resulting series of clear pictures of the wings in their different positions gives one a new notion of the flexibility of the feathers.

Wing a Wondrous Mechanism

There is the upstroke, for example, when not only is the wrist joint bent so that the wing as a whole offers the least resistance to the air, but the individual primaries and secondaries are all turned on edge, so that the wing opens up like a Venetian blind (page 775). One sees the robin's body right through the wing, and the wing is lifted with practically no air resistance.

On the downstroke, however, the flight feathers are beautifully imbricated, or overlapped, to give the greatest possible resistance to the air (page 772).

In photographs of the robin about to alight, we see the group of feathers borne on the thumb, and known as the alula, standing out at almost right angles to the wing. The tiny rudimentary first primary, which is found in all thrushes and for which no one has ever advanced any satisfactory explanation, likewise stands out from the rest of the wing (page 773 and Plate XII).

Can it be, as my colleague, Dr. Paul Kellogg, suggests, that these feathers, acting in conjunction, serve like the spoilers on the front edge of the wing of a plane to break up the smooth flow of the air and destroy its

lifting power? This would allow the bird to alight more accurately.

The number and relative lengths of the flight feathers in different individuals of the same species of birds are always the same, as are the actual lengths also, to within a few millimeters. Indeed, all the species in a bird family, such as the thrushes (*Turdinae*), which include the robin, show remarkably little variation.

In the robin photographs, for example, one sees a tiny first primary followed by four long primaries of about equal length, followed in turn by five gradually shortening primaries and six secondaries, giving the appearance of a more or less square-ended wing.

If one were to examine the wing of a wood thrush or a bluebird, or any one of the 304 species of birds found all over the world that make up the thrush family, he would find the same rudimentary primary, the same four long primaries, etc., making up the same shaped wing. There would be few exceptions.

On the other hand, if one examined any one of the 63 wrens that make up the family *Troglodytidae*, one would find, as in the photograph on page 788, a wing in which the primaries gradually lengthen from the first to the fifth and then shorten again as the body is approached, giving the appearance of a rounded wing.

Similarly, in all the swallow family, the *Hirundinidae* (page 790), the first primary is the longest, and the flight feathers shorten very abruptly toward the body, giving what is called a pointed wing.

The number of functional primaries (those borne on the modified hand) of an ordinary bird is always ten, except in a relatively few families of perching birds, where the number is nine. The number of secondaries (those borne on the forearm), however, varies considerably in different families of birds, from the six (plus two tertaries) of the thrushes to as many as 37 in the excessively long-winged albatrosses.

Indeed, length of the wing in birds is usually gained by increasing the length of the forearm with its secondaries, rather than increasing the number or relative lengths of the primary feathers.

Birds in Flight Identified by Wings

The different shapes of the wings of a number of small birds are shown in the accompanying photographs, and one familiar with birds in flight can often identify their silhouettes against the sky by characteristic wing action and resulting steadiness or undulations in the course of flight.



A High-Speed Flash, Clarifying a Whirling Bird, Reveals What the Eye Never Sees

For the first time, a high-speed photograph of a cardinal in flight has revealed the intricate structure of its feathers. The bird, captured in mid-flight, is shown with its wings spread wide, revealing the fine details of the plumage. The photograph was taken using a high-speed flash, which allowed the photographer to freeze the motion of the bird and capture the details of its feathers. The cardinal is shown in a dynamic pose, with its head turned to the right and its tail feathers fanned out. The background is a soft, out-of-focus green, which makes the bird stand out prominently. The overall effect is a stunning and detailed representation of the cardinal in its natural habitat.



Speed Falcon, Shows How a Falcon's Spectacular Leap and Flight is a Wonder to Watch

THE FLYING DUTCHMAN

The Flying Dutchman is a legend of the sea. It is said that a ship is doomed to sail the sea forever, and that the crew is doomed to live on board for ever.



THE FLYING DUTCHMAN

The Flying Dutchman is a legend of the sea. It is said that a ship is doomed to sail the sea forever, and that the crew is doomed to live on board for ever.



Some Light's Moments
Have More Power
than Darkness

...the light of the sun
...the light of the moon
...the light of the stars
...the light of the fire
...the light of the candle
...the light of the lamp
...the light of the torch
...the light of the lantern
...the light of the oil
...the light of the gas
...the light of the electricity
...the light of the sun
...the light of the moon
...the light of the stars
...the light of the fire
...the light of the candle
...the light of the lamp
...the light of the torch
...the light of the lantern
...the light of the oil
...the light of the gas
...the light of the electricity





A Red-shouldered Hawk perched on a branch, looking down at a small yellow bird (likely a Goldfinch) on the ground below.

A Red-shouldered Hawk perched on a branch, looking down at a small yellow bird (likely a Goldfinch) on the ground below.



It would be interesting to photograph a hawk and a careful study of the use of the different feathers to work out the correlation between wing shape and wing use, as practiced by different species.

Of course, certain relationships are obvious, such as the long, narrow wing of gulls for gliding, the broad, rounded wing of hawks for soaring, and the short, rounded wing of grouse for quick bursts of speed. The numerous minor variations, some of which are manifest in the accompanying photographs, will require much study before they are fully understood.

Speed Flash Quicker Than a Wink

Another action which is too quick for the human eye, but which is recorded by the speed flash is the movement of the bird's inner eyelid, or nictitating membrane, as it is called. This translucent membrane flicks across the eyeball to remove dust or to give protection to the cornea when necessary.

When a robin feeds its young, the membrane naturally draws across the eye to keep out the bill of the youngster or to keep the sand on the worms from lodging where it should not.

An examination of the accompanying photographs of the robin shows the eye's "blink" across the eye when the birds' feet touch the nest (page 776) and completely across it during the act of feeding (page 777). The young bird's eye is protected in the same way.

The position of birds' feet in flight and upon landing has always given naturalists cause for conjecture and argument, and taxidermists and bird artists are frequently in disagreement. The tremendous forward swing or extension of the legs of hawks and falcons upon alighting or pouncing on their prey is seldom credited or shown with accuracy in paintings or in habitat groups of mounted birds.

Two of our Cornell students, Heinz Menz and Steve Collins, have been training hawks, and this gave us an opportunity to record leg action as well as wing action when the birds pounced upon dead mice or returned to their owners' feet (Plates X and XV).

It is remarkable how tamed these birds become when properly handled, celebrated though they are for their wildness.* Captured when fully adult, and knowing only the fear of man and the ferocity of killing its prey in mid-air, a peregrine falcon, after a few months of training, becomes gentle and flies

to its trainer's hand at the proper whistle.

Tossed into the air, given his liberty to go where he pleases, he waits on the pleasure of his trainer and circles about until the whirling hare tells him there may be food at his owner's feet, if he strikes the imitation bird from the air.

In striking as in alighting, the hawks extend their legs to the utmost, so that the weight of their bodies in bending the tibiotarsal joint will drive the sharp claws into the victim or about the perch where the hawk alights. With the larger hawks the trainer must wear a heavy glove.

The accompanying photographs of the hawks do not show where the feet are carried during normal flight, but with binoculars they are easily seen under the tail as the birds circle overhead.

The long legs of herons and cranes trail out behind and are easily seen at a distance, but how does a small bird hold its feet in flight? Most of the accompanying photographs are of birds about to alight when the legs are being let down like landing gear. The house wren, however, still has his feet tightly pressed against his breast (page 788), and the others are apparently dropping their legs from a similar position rather than from beneath their tails.

The ridiculous posture of the song rail (page 789) is due to the fact that when tails take off on their weak wings they continue to claw the air with their long toes as if they were still running over the mud flat, and it is only when they get well under way that their legs trail out behind like a heron's.

At First, Camera Caught Only Tails

When shooting with a shotgun, whether a quail, grouse, ducks, or clay pigeons, is usually not very successful for the tyro. It takes years of experience before one can confidently place a three-foot circle of shot on the exact spot where the flying target is expected to be at a somewhat uncertain fraction of a second later, depending on the distance, the speed, the wind, etc.

And so, likewise, with the high-speed flash of flying birds, if one waits until the bird is at the desired spot before pressing the release, one will photograph a blank every time—or at best get only the bird's tail on the film.

The first time any of us used the apparatus with which the accompanying photographs were made, we focused on a spot that chickadees and nuthatches were expected to pass in coming to a feeding station. They passed the spot all right, but so rapidly that out of 12 shots fired by three of us, the resulting bag of bird photographs was three chickadee tails.

* See, by Frank and John Craigman, in the *National Geographic Magazine*, "Life with an Indian Prince" February, 1943 and "Adventures with Birds of Prey," July, 1943.



Extended and Reversed a Horned "Raven" Through the Air as He Would on Land

In spite of their weak wings and awkward-appearing take-off technique, some vultures cross the Caribbean to winter in Venezuela and Peru. In the Atlantic States the vultures are considered game birds. Each year they run a hunters' gambit in the falcon matches.

The photographer has to learn from experience his personal delay in reaction from the moment he says to himself, "Shoot," until the message is conveyed to his finger tips with the resulting flash, and he has to estimate how far the bird will travel during that delay.

Of course, there are no cripples if he does not center his birds, but there is considerable disappointment and loss of face when an otherwise perfect photograph comes out of the developer showing only the tail of a bird.

Naturally, the operator has no control over the position of the wings of the bird as it is just graphing and many a dud results, even when he becomes expert at centering; the bird's wings may be in the air, but they are concealing the bird's head, or in some other awkward position.

Practice Shots at Feeding Station

We began our practice shots with the high-speed flash at a feeding station for birds where their comings and goings could be somewhat regulated, for it is necessary to have the apparatus set up in advance, with lens and lights trained on a definite square foot of space where the action is to take place. In addition, the action has to occur

on a very narrow stage, for the depth of focus is only a few inches.

Therefore, I trained the birds to feed in front of our blind on a shelf about six inches long and two inches wide, and I placed a convenient perch about two feet from the shelf on which the birds were expected to alight before flying to the feed.

I knew they would then traverse a definite path; I would have plenty of warning and could concentrate upon centering the bird as it flew.

Eighteen inches, I discovered, was my delay in reaction, so that I had to push the shutter release the moment the bird left the prepared perch if I wished to catch him in the center of my film, which was focused on the square foot 12 inches distant.

Red squirrels and chipmunks do not move as quickly as birds, I discovered, for when I made the same allowance for them, as they jumped from the perch to the food shelf, they had barely reached the film when the flash recorded their jump.

Even after all these preparations, I sometimes photographed the blank blue background which I had set up behind the food shelf to avoid the blackness of most flash-



A Barn Swallow, Preferring Man's Abodes, Sokes a Phone Wire with a Winged

Perch. Barn swallows are common in all parts of Mexico. When they are abundant they are a great annoyance to the householder, especially in the case of the small, one-story houses of the country. They are very noisy and very persistent in their attacks on the human habitations.

and perches. The reason for this was that the birds occasionally changed their minds after leaving the perch and flew to the ground or to the top of the set—and, after all, I was a blind reader.

Curiously was this true of the little chachalacs, which became a terror to the flock after a few experiences. Even though they could see no motion or other indication of my intentions in the blind, they would change from a perch in my air and fly in some other direction, and then, after a few moments, they would return to the same place.

It was a good thing, however, that I was not sketched in the middle of the breeding season—

and that I was not in the middle of the breeding season of the birds.

Argument was "Peck Order"

Swallows, like all other birds, have a peck order. It is a peck order, and it is not often that the birds will take place in the plane of focus, but occasionally a peck order resulted, such as one of a redpoll to peck at a white-headed vireo. It was up one wing and point his bill at the vireo, and then to intimidate him. In most of the cases, at least one of the birds would be pecked to be out of focus.

Luxembourg, Survivor of Invasions

By SYDNEY CLARK

With Illustrations from Photographs by Margaret Green Hoffman

LUXEMBOURG has been surviving invasions for more than a thousand years, but America's part in her latest and most perilous survival—from the Battle of the Bulge in 1944-45—was directly responsible for my own survival as a postwar pleasure traveler in the Grand Duchy.

Some twenty months after Field Marshal Karl Rupprecht Gerd von Rundstedt's attack and repulse, I entered the city of Luxembourg, the capital, and at the nearest hotel nonchalantly asked for a room.

"Sorry, sir," said the clerk, in good English. "We've had to turn away over 200 people today. We have nothing at all."

Thinking the place might be especially in demand because it was a good hotel directly opposite the station, I tried another, then another, and then ten others in swift succession, becoming very unfussy indeed.

Vacationists Tax Luxembourg Hospitality

There were almost no American or British travelers in evidence, and scarcely any French, for their own Government's severe currency restrictions prevented them from touring outside of France; but it seems that I had reckoned without the Belgians. As visitors they can enter Luxembourg without passport or visa, and their francs are interchangeable at par with those of the smaller country.

All Luxembourg is holiday terra for tens of thousands of Belgians, and their number that day was much above normal, since this was the week end of July 21, Belgium's national holiday.

It was late afternoon, and still another hotel manager was giving me his polite regrets, when a timid girl of about 14 appeared and told him her mother had a room. She would take two ladies or a nun and wife, provided they would stay at least a week.

The manager turned brightly to me and asked if I would pay as if for two.

"Of course," I said eagerly, but the girl, a stenalist, interposed firmly: "No, Mamma said it must be two people, and they must stay a week."

"Go along with her, anyway," said the manager. "You can talk her mother into it. Don't let the girl out of your sight."

It was a good half mile to her home, and during the walk we talked in French. As I answered the youngster's questions about

Hollywood, she melted utterly and became my friend and champion. When I saw her mother, I knew that I had need of a champion.

"No, Kathy," said the dear lady very sharply in the Luxembourg patois, which my knowledge of German enabled me to grasp. "No. I told you to get two ladies or a nun and his wife."

"But, Mamma, he . . ."

I interrupted and explained in German that I was an American writer come to see where my countrymen had fought in Luxembourg.

"Your Soldiers Saved My Country"

"I'm Amerikaner! Doch! And are you a friend, perhaps, of the great General Patton who died and who is buried at Hamm near here?"

"I met him," I replied, making what I could of a very minor contact.

"But that doesn't matter," she said, and her whole manner had changed to one of eager hospitality. "You are an American. Your soldiers saved my country. More than 8,000 of them lie at Hamm. Come in, come in. I will show you your room."

I presently went out to see the city and to dine, and when I returned at 10 o'clock I found mother and daughter leaning out of a window to watch for me.

"Do they have chocolate in America?" called the girl.

"Yes, Kathy. We have chocolate, and gum, and tall buildings, and big cities."

"Which one do you live in?" she asked as I came into the house.

"Boston."

"And is that near New York?"

"About 300 kilometers."

She thought I said *meters* and fairly squeaked. "Three hundred meters! My, that's pretty near! I'd like to live that near to New York."

"Go to bed, Kathy," called her father from another room. "Let the gentleman rest."

"Yes, Papa." But she didn't go. Her mother asked if I should like to have her wake me in the morning, but I said I had an alarm clock. Kathy pleaded to see how it worked, so I showed her.

"Tell me about the tall buildings, sir," she called evantly.

"Go to bed, Kathy," from the other room.

"Yes, Papa."



A Flower-vending Countrywoman Finds Business Brisk in a Luxembourg City Square

Her occupation with flower-vending is common in the capital. Even so, however, the flower-vendors are not the only women who are busy. A French woman is seen in the foreground, and a Luxembourgian woman is seen in the background. The scene is a typical one of a busy city square.

"She is a very pretty girl," said I. "Is she?" "Yes, very pretty," said I. "What was General F. like when you met him?"

"A little like this," said I. The voice was thunderous.

The girl was greatly scared, and very frightened. She had fastened her belt and turned round and then over her head, but she did not move. Her mother moved up to her side when she was in some way, but she did not move. She started up and moved both her hands. Her eyes flashed. She looked at me no more words but pressed on her head and fled.

It was a very moving experience. I so nearly caught her in Luxembourg, with no

roof over my head. I had been in the square for some time and had seen a number of the same scene.

In Luxembourg, the war had not been so long. Despite the terrible destruction wrought by our airmen and ground forces in blasting Ver Rindstedt's offensive and in driving his forces back into Germany (60,000 persons were made homeless by the bombing), the people of Luxembourg were devotedly loyal to the French cause, and a few

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that we are committing we will endeavor to make good. Our military aims have been attained.

On October 1, Germany had actually been at peace with France. There was no invasion of Luxembourg, and there was no injustice. The Soudenz proclamation and the German Chancellor simply did not tell the same story.

In sober fact, France had withdrawn her troops for a depth of ten kilometers on her side of the Luxembourg border and forbidden her troops to go beyond that point lest "incidents" occur.

Luxembourgers Chose Cause of Freedom

The Luxembourgers immediately gave their support, almost unanimously, to the Allied cause. Thousands of men, having no other choice, left their country, went to France and enlisted in the French Army. Of the 3,200 Luxembourgers who fought in the Allied ranks in that war, 2,000 lost their lives.

Grand Duchess Marie-Adélaïde abdicated the throne in 1919 and retired to a Carmelite convent in Modena, Italy. She died in 1944 at the age of 74.

Her son, Grand Duke Jean, succeeded her and is still the reigning sovereign. In World War II she behaved with as much insight and courage as Queen Wilhelmina of the Netherlands, fighting her nation's cause from free foreign soil. She is warmly beloved by all Luxembourgers.

As the German aggression of 1939 rumbled across the horizon, was Luxembourg directly in the line of path of conquest?

In this connection, recall President Roosevelt's personal appeal to Hitler on April 15, 1939, requesting a pledge that he would



Merrill, He Plays in the Band at Vanden's New Festival.

Luxembourg, by its position, was not one of the links of the line that Our River in northern Luxembourg. Perhaps the only link is the fact that Luxembourg had a couple of sections of the line that were not invaded. Each October the town holds a festival, and the festival is a very important one.

not invade 31 specifically named countries of which Luxembourg was one.

Hitler chose to consider it a very funny document. He read it aloud to the Reichstag, which roared with laughter at the Leader's hearty humor. I heard it all over the radio from a Paris cafe and I will never forget the sound of Hitler's laughter. The name of Luxembourg in the list. He was a high kittle. A very funny paper this, from Warmingher & Co. (revel)

After war broke out, and as late as May 1940 the Nazi Government declared: "Germany does not intend to impair the integrity or independence of the Grand Duchy either now or in the future."



Plowed Fields, Forests, and Trim Towns Make a Peaceful Pattern in War-torn Luxembourg
Aerial photograph of a rural landscape in Western Luxembourg, showing a patchwork of fields, forests, and small towns.



It Contrasts Abruptly with Scenes in the Path of the Savage Battle of the Bulge

The aerial view of the forested area, which is a remnant of the original forest, is a stark contrast to the coastal area, which is a remnant of the original coastal area.



General Patton Lies in the Luxembourg Soil He Liberated

Patton's body was buried in the Luxembourg soil he liberated. The grave is marked by a simple wooden cross with a plaque that reads "Geo. S. PATTON Jr. GENERAL 076557 ARMY". The grave is surrounded by flowers and a large cross-shaped shadow is cast on the ground to the right.

The prisoners and officers of Patton's 3rd Army, including the 1st Infantry Division, were held in the Luxembourg soil he liberated. The prisoners were held in the Luxembourg soil he liberated. The prisoners were held in the Luxembourg soil he liberated.

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ruenor's side. Germany made Luxembourg an integral part of the Greater Reich and pressed all men of military age into the German Army, but a member of the Government told me that 60 percent of the men mysteriously "disappeared." They turned up later in the Allied armies or remained undercover, working secretly with the Free French underground forces.

In spite of this, the Nazis were able to round up several thousand young men between 18 and 24 and sent them to the Russian front. Up to date, more than 2,000 Luxembourg young men are missing, in addition to the number established as killed in battle.

The Germans looted most of the homes of patriots who were in exile or whom they had deported or imprisoned. Thirty thousand Luxembourgers were forcibly deported from the country.

When the war finally turned against Germany, her forces were driven out of Luxembourg, in September, 1944. A wave of infinite relief came to the Grand Duchy. By a veritable miracle she had escaped destruction.

"The Rundstedt Thing"

But then came the awful anticlimax, the December Battle of the Bulge, which local folk bitterly call "the Rundstedt Thing." That "hangover" of war's harsh fury did what the earlier incursions had not done. Though it mercifully missed the capital by a narrow margin, except for a few projectiles, the fighting literally laid waste all the northern part of Luxembourg: it spread over to the Belgian Ardennes and ruined that section, too.

The traveler may easily cross the border from Wiltz to Bastogne and visit the wreckage of Bastogne. It is a macabre spectacle, but the Belgian town is enormously proud and grateful, despite its ruin, for the stand made there by the Americans.*

It seems to me a wonderful evidence of recuperative power that so soon after this holocaust the Belgian Ardennes and Luxembourg became again regions of high holiday.

Even Echternach, the most battered town in all Luxembourg, I found awash with tourists, hundreds of them Luxembourgers, and it was the same in ravaged Vianden and Clervaux. Every possible hotel that could make a few of its rooms habitable did so and filled them promptly with lighthearted vacationists.

The fact that the capital escaped with slight damage is a boon to all visitors, as well as to the Grand Duchy, for to me there is no more strikingly situated city in Europe. It perches on a rock base shaped like a curving and decorative M, the strokes of the letter being

the dizzy deep valleys of two small streams called the Petrusse and the Alzette.

The base of the M is a glorious semicircle of bosky park where once stood thick walls, for this city was formerly an "Inland Gibraltar," one of the strongest fortresses on the Continent. Because the fortress was dismantled in favor of the parchment ramparts earlier mentioned, after the Treaty of London in 1867, the city now bristles with steeples rather than guns. But the old casemates, with their miles of underground galleries, are one of its greatest attractions.

From the lofty bastions above the river valley the scene is startling in its grandeur. Best are the views from the Boulevard Franklin D. Roosevelt and from a point, with porcelain observation disk, where two streets called Cornice Way and Adam's Run (Chemin de la Corniche and Côte d'Adam) meet high above a hairpin curve in the Alzette.

The grand ducal palace, which the Nazis used as a tavern, is near this point and worth seeing as a study in royal simplicity. Were it not for the alert military guards at the entrance, one would think it merely a fine private residence, one of many in the city.

Radio-Luxembourg, located in the capital, is one of Europe's most influential broadcasting stations.

Another sight, of much more urgency to the average traveler, is an advertising sign filling the sky of a side street near the palace with metal letters by day, neon glow by night, and gastronomical allure at all times. It says simply *STUFF*, and that is precisely what one does upon entering the establishment.

"Stuff" is the name of one of the most appealing restaurants in Europe. I found its fare and everything about it exactly the same as when I first discovered the place (and obeyed its gleaming command) in 1929.

A Paradise for the Palate

For some reason hard for the visitor to grasp, Luxembourg, even after its latest and hardest survival of invasion, very quickly recovered its capacity to provide good, ample food and to cook and serve it well. To my delight I found that a foreign partaker of it need not cope with ration tickets, as in most lands, or even pay extra for the lack of them, as in Belgium. In every Luxembourg restaurant, I, as a foreigner, was asked merely to sign a food register and record my nationality and permanent residence.

"How does Luxembourg do it?" I asked myself and then others. The best answer I could

* See "Belgium Comes Back" by Harvey Krimmer, NATIONAL GEOGRAPHIC MAGAZINE, May, 1948.



1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

\mathcal{L}_1 and \mathcal{L}_2 are the loss functions for the first and second stages, respectively. \mathcal{L}_1 is defined as the cross-entropy loss between the predicted and ground truth labels. \mathcal{L}_2 is defined as the cross-entropy loss between the predicted and ground truth labels. The total loss function is defined as $\mathcal{L} = \mathcal{L}_1 + \mathcal{L}_2$. The model is trained using the Adam optimizer.



Near Davenport Ruins of Llanthony's Abbey of Upper Left; Little Davenport Wrecked by Old Chateau (Right), (Opposite Parish Church



In Battered Peabody Church a Gothic Arch Frames War's Destruction and Youth's Blatant Sport

Four members of the Junior Peabody Church, the oldest in the city, are standing in the foreground of the photograph. The building in the background is the Peabody Church, which was destroyed by fire in 1902. The photograph was taken in 1903, and the building in the background is the same as the one in the photograph.

It was that the Nazis considered Luxembourg a "fortress" and not a "land" which they could not and had no time to do so when they were being resisted.

However, the Germans had lost it considerably, and I fell back on the belief that this bicoloric land is especially favored by Nature and that its people have a special interest in eating a number of special Luxembourg products.

The staff proved an excellent place in which to examine the language of Luxembourg. In one of its books was a gay quatrain which may be translated:

La langue de la nation
Luxembourgeoise
Est d'origine
Quatre-vingt-dix pour cent
Allemande.

The words for "German" and "French" were *Allemant* and *Franz* respectively. I was with a young Luxembourgish in German. A nation of staff, outgrowing my interest, addressed me in French and with a curious belatedness.

The popular language here is nothing like German, monsieur, though it might seem so to you. It comes straight from Holland and French. Germans can't understand us Luxembourgers when we speak the national language.

I politely agreed with all he said, but the language of the Grand Duchy still looked and listened to me very much like German. I bought an advertisement on the staff menu for a certain brand of cigars which was "known to be" brought on goose Land (known as the best in all the land).

I took out my wallet and studied my Luxembourg paper money of the denominations of five, twenty, and fifty francs marked



A Biblical Precedent Guided Potato Growers at Dazzling Time

Like I was in contact with Ruth, many "let fall seed" in the "land of the living" to those who are "in the land" but proud might not be. The state helps potato growing has developed rapidly in Luxembourg. In 1946 the Grand Duchy exported nearly 200,000 tons of potatoes.

Finest France, Zücher & France (Finest France) each had here also the country of the "Land" which is Lützelburg (from Lützelburg, the Fortress) as well as the French and "Finest France."

I thought of the freedom cry of I was among carved on a stone pillar in the Paris d'Armes: *Mir Wille Bleibe Wat Mir Sin* (meaning "We wish to remain what we are") and mentally compared it with the German *Ich will bleiben Was Ich Sind*.

It did certainly "seem so" to me, but I remained on a plane of politeness with my self-appointed informant. It seemed to me significant that he felt shame and anger that a

foreigner might consider his language similar to that of the de-ested Reich. I decided then that it would take a hundred years of patient effort for Germany to win the friendship of the little land which she has so cruelly and repeatedly violated.

A Land of Linguists

Most of the people of Luxembourg speak French (the official international language of their country) as well as German and their own idiom. Many also speak English, learned in school.

An American officer in Luxembourg during the war encountered a rosy-cheeked little boy being drawn on a sled by his mother. When the boy smiled a greeting the officer said, "Bonjour," whereupon to his surprise the lad exclaimed to his mother in perfect English, "Wow, he is French!"

In the local newspapers three different languages may appear on the same page. One article may be in German, one in French, and another in the Luxembourg idiom. For the benefit of Americans during the Battle of the Bulge English was added to this paper.

Religion, government, and steel are the three foundation pillars of the Grand Duchy, and all are interestingly represented in the capital.

Religion I place first, because its power over the people is tremendous. This is a Roman Catholic land of intense, old-school piety.

For two weeks during the month of May almost the entire population of the country makes a pilgrimage to the capital to worship "Our Lady of Luxembourg, Consolatrix Afflictorum," the patroness saint of the Grand Duchy for 350 years.

At Sunday masses in the capital's cathedral, a packed congregation comes thundering in with its responses in such prodigious volume and such unison that one can have no doubt of the Church's hold on the rank and file.

The Cathedral has a special treasure—the tomb of John the Blind, as colorful and valiant a warrior as ever brandished a sword. He was Count of Luxembourg as well as King of Bohemia. When stricken blind, he still fought on, wherever a fight was to be found. He led his troops personally at the Battle of Crécy and was killed there fighting for his ally, France.

A popular story, though historians discredit it, is that the British forces were so impressed with the bravery of John the Blind that they paid him the compliment of stealing his ostrich plumes and his motto, *Ich Dien* (I Serve). These were adopted as the badge of Britain's Prince of Wales, and still remain so.

The government of the Grand Duchy centers in buildings close to the palace. There is a Chamber of Deputies of 51 members and a Council of State of 15 members, the latter appointed by the Grand Duchess for an indefinite term. Hardly ever is the country shaken by that bane of Laeral democracy in Europe, the cabinet crisis, or *crise*.

Iron and steel form a tremendously stout support for Luxembourg's economy, for they are big business throughout the southern portion of the country.

More than 7,700,000 tons of minette (iron ore) were mined here in 1937, for example, and 3,000,000 tons of pig iron and steel, in about equal proportions, were produced. All this is greatly curtailed at present because of Luxembourg's difficulties in obtaining coal.

ARBED and HADRA are the composite names (made from initials) of the two largest companies, which dominate the industry. Arbed's building, on the land between the Pétrusse viaducts and the railway station, is one of the most modern and pretentious in the capital. During the Battle of the Bulge it served as Headquarters of Maj. Gen. O. P. Weyland's XIX Tactical Air Command, cooperating with General Patton's Third Army.

The steel region in the southwest is as smoky and drab as it is industrially important, but Mondorf les Bains in the southeast, Luxembourg's one bid for the society that visits spas, is as neat a little resort as ever brought wry faces to those who quaff curative waters. The whole northern half of the country is a glory of travel, despite the pitiless battering of war which laid 38 percent of the country in ruins.

Potatoes Left for Poor and Proud

Rising from war, this little land is helping herself. From one end to the other—only a two hour drive—one sees a country at work. New roofs are rising against rain and cold. Grassy lands cattle in the dewy grass and knits warm socks for winter. Sturdy folk harvest potatoes and grain. Beside the Moselle young girls pick grapes. Children drive home the herds at dusk.

In one field Maynard Williams, who made the photographs for this article, noticed what seemed like waste: many good potatoes left on the ground.

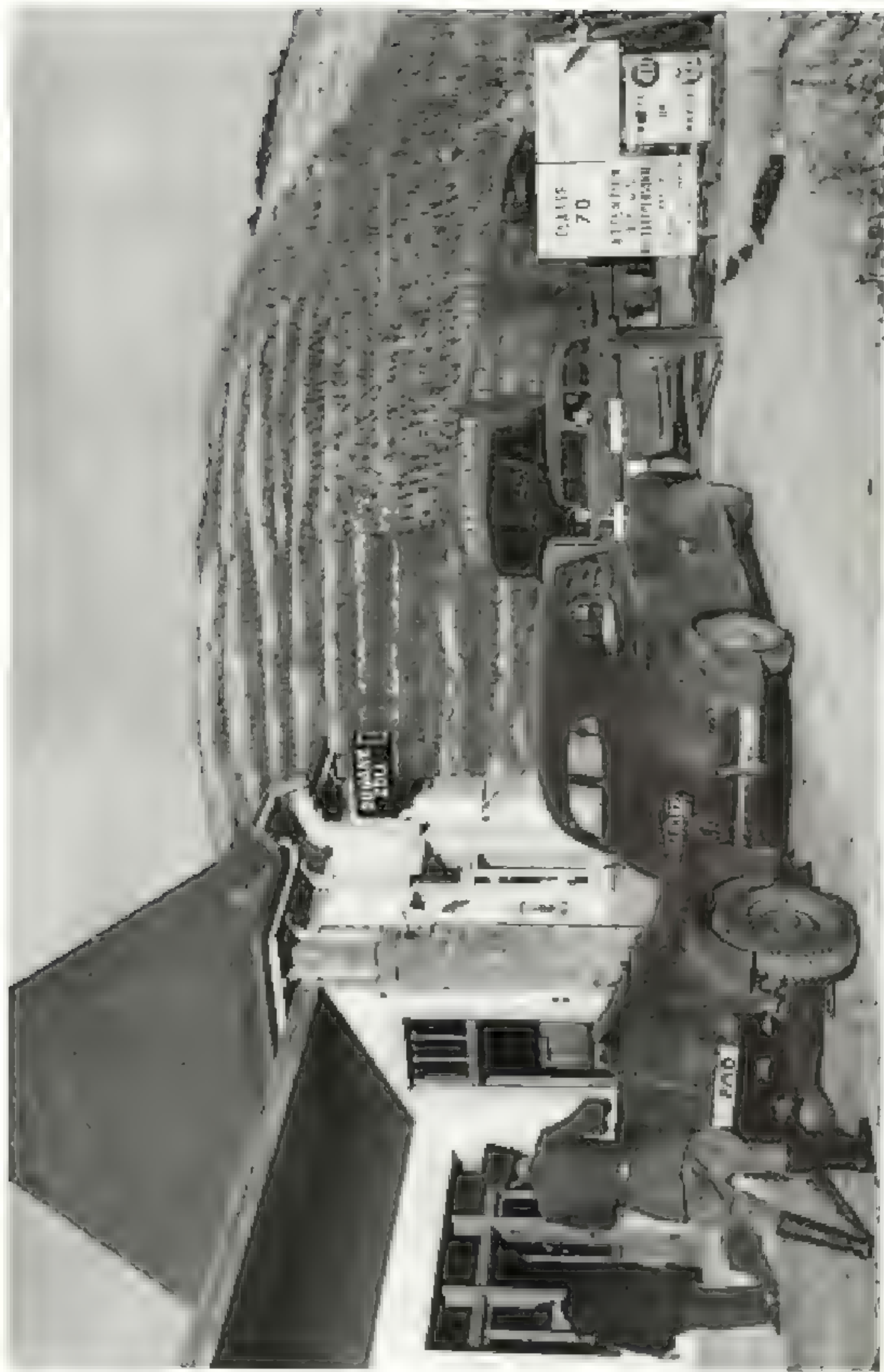
"Our poor people are proud," his driver explained. "But anyone is allowed to pick up what the harvesters leave behind."

Echternach, scene of the famous Dantzig Procession in honor of St. Wilibrord, is a town of insistent "personality." It lies on the south bank of the small Sure River, with



A War-born Youngster Finds a Picture-taking Yink from Her Shell-pocked Home

But she is not alone in her misery. In all ways, the town of Fort-sur-Sarre, near a frontier town, has been a scene of horror. In the Battle of the Marne, the town was captured by the Germans, and the town was burned to the ground. The town was then occupied by the Germans, and the town was then occupied by the Germans.



At a Former Gas Station a Luxurious Office (Check Ends Road for Carmichael's Lunch Zone)

For a full description of the building, see the "CLIFF 70" sign. The building is a two-story structure with a large sign on the front. The sign reads "CLIFF 70" and "CLIFF 70". The building is located on a street corner. The street is named "CLIFF 70". The building is a two-story structure with a large sign on the front. The sign reads "CLIFF 70" and "CLIFF 70". The building is located on a street corner. The street is named "CLIFF 70".



In Mrs. Wanda Harper He Collects Grapes for Wine
 Such too grapes are kept in glass bottles and
 made into wine for the purpose of making
 a fine wine for the purpose of making a fine wine



In Mrs. Everett a Planted Vineyard Land a Land
 Such too grapes are kept in glass bottles and
 made into wine for the purpose of making a fine wine
 a fine wine for the purpose of making a fine wine

Germany across the way on the north bank. A partly Roman bridge used to connect the two, but it was broken to dust in 1944, for here Von Rundstedt launched one wing of his massive offensive.

The town is a tragic wreck, yet I found holiday in full swing. Twenty or more hotels had reopened for tourist trade (page 802).

Feltrischen Dances to Honor a Saint

On an earlier occasion, before the war, I witnessed the Dancing Procession, which occurs on Whit-Tuesday, the 52d day after Easter. Fifteen thousand persons participated, dancing from the German side of the river across the bridge to the town church and the tomb of their holy patron, St. Willibrord, who cured the local cattle of a bovine affliction more than a Lucretia years ago.*

They danced or capered five steps forward, three back, five forward, three back, and so on, forming rigged lines held together by laced handkerchiefs which the dancers clutched in either hand.

Some of the young men were dancing as hurelugs for others who wanted to honor the saint but had not the strength to do so personally. But thousands of the dancers were older folk. Some of the stout old grannies, I thought, would certainly die of exhaustion after a number five-and-threes, but I heard of no fatality. Forty or fifty brass bands and numerous groups of violins filled all the air with sound.

A priest surveying the long line saw a cluster of girls whose arms were *hurel*. He sent them home to put on their coats though the temperature was 85°. In such matters, Luxembourg is highly conventional.

In the postwar era the Whit-Tuesday procession goes on as of yore, though it cannot cross the bridge that isn't there, and St. Willibrord's remains are no longer in the town church but in the crypt of the abbey basilica where they were placed for protection from bombing.

This basilica is itself a war victim, an almost total ruin, but Luxembourg hopes to restore it. A restoration worker took me in to see the tomb, lighting a newspaper as a torch, for the place was as black as solid jet.

"You're on your own, monsieur," he said pleasantly. "It is forbidden to enter here. Pieces of stone still fall from the cornices. Look here," and he showed me a bad gash in his scalp where a fragment had fallen on him.

Echternach, in its contrast of tragedy and gaiety, seemed to me a living laboratory of human behavior. Three modern invasions, the last a cyclone of steel and explosives, have

left its habits and ways of life unaltered.

Vianden is on the Our River, which forms the Luxembourg-Germany frontier for many miles. But at Vianden a Luxembourg pocket about a mile in depth extends into Germany on the east bank.

Of all towns in the Grand Duchy, Vianden is the most spectacular for beauty of site. Occupying both banks of the Our, it clings to the hills steeply and culminates in the sky-piercing 10th-century castle of Orange-Nassau-Vianden, which looms like a symbol of feudalism high above town and river. From this castle came the present ruling dynasty of the Netherlands.

When I first visited it, between world wars the castle was impressive and even dispensed a certain aura of gaiety, for I read and took down a very jolly death notice, that of "Madame War," dated November 11, 1918. It concluded with the words:

The Families Death, Misery, Illness, Devastation have the great pleasure of informing you of the long awaited loss which they have just suffered in the person of
MADAME WAR

A thousand times alas! The old lady was not dead at all, but merely playing possum. She recovered, returned in 1940, and came again in 1944, utterly wrecking the château on the latter occasion. It is now a labyrinth of scarred and towering walls that reach for heaven. But the castle's verdant terraces still offer the same incomparable view. That the bombs and artillery of the Rundstedt Thing could not obliterate.

Victor Hugo was an exile in Vianden in the dark years of 1870 and 1871. His house, on the bank of the Our, was a prewar museum, but it is now a bomb wreck and its contents have been riled.

Clervaux's Connection with FDR

Clervaux, almost at the "stem" of the pear-shaped Grand Duchy, is proud of its connection with Franklin Delano Roosevelt by way of the Delano component of his ancestry.

A noble family of this village bore the name of De Lannoy. A member of another branch of the family, Philip de Lannoy, or De La Nove, was born in 1602 and sailed from Holland to the New World in 1621 on the ship *Fortune*. He landed at Plymouth, Massachusetts, to join the colony established the previous year. The second generation changed the spelling of the name to Delano. Sara Delano Roosevelt, and hence her son Franklin,

* See "The Grand Duchy of Luxembourg" by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE November 1954.



A Roadside Picture Map "Blows Up" Tiny Luxembourg for Touring Visitors

It is a map of Luxembourg, a tiny country in Western Europe, which has been reduced to 99 square miles, about 1/10th of its original size, by the Nazis. The map is a large, detailed map of the city of Luxembourg and its surrounding regions, with numerous place names labeled in French. The map is a roadside picture map, designed to help tourists find their way around the city and its surroundings.

and the destruction of Philippe's home. I returned to Luxembourg in 1945, and I was amazed to find that the city had been almost completely destroyed. The Nazis had used the city as a target for their bombing raids, and the city had been almost completely destroyed. The Nazis had used the city as a target for their bombing raids, and the city had been almost completely destroyed. The Nazis had used the city as a target for their bombing raids, and the city had been almost completely destroyed.

For forty years this abbey has seemed to float like a banner of heaven over the village, its religion, venerable tradition, and even a

excent reverence for the abbey's architecture were trampled coldly by the Nazi transformation. The round Romanesque wind towers were cut square — make it a letter factory of brutality. The abbey church was used, and abused, as a gymnasium.

Two Luxembourgians were suspended to the long, steep steps in bikes and happened to enter the church at the same time I did. They pressed around my shoulders and I saw the same face of the interior.

The Allied bombardment, I supposed, had this in doing out Von Rundstedt.

"But no, monsieur," said the policeman.



Working Hands Help Plucky Luxembourg Survivor of Invasions, to Rise Again

FOR THE FIRST TIME SINCE THE DESTRUCTION OF THE LITTLE COUNTRY—WALL OF THE FORTRESS—IN 1940, THE LUXEMBOURGERS ARE BUILDING A NEW FORTRESS. WITHOUT THE FORTRESS, THE COUNTRY WOULD BE A DEAD END. FROM THE COUNTRY, THE FORTRESS WOULD BE A DEAD END. THE FORTRESS WOULD BE A DEAD END. THE FORTRESS WOULD BE A DEAD END.

But the country is still there. "The Huns did this. Not the bombardment."

The country is still there. "The Huns did this. Not the bombardment."

Absolutely, sir. Not one bomb ever touched it. The Nazis did it to show their contempt for religion. And when they were driven out, the country was left as a ruin.

The country is still there, halfway down the great mountain side, a very low bombardment and the country is still there. The country is still there, halfway down the great mountain side, a very low bombardment and the country is still there.

On an old monument commemorating events in the War of the Peasants, 1798, during the

period when Napoleon swept Luxembourg into the hands of the French, I read a reference to the Luxembourgers. It was a reference to the Luxembourgers.

There had once been a word used in the country. The word "Luxemburger". It was a word used in the country. The word "Luxemburger". It was a word used in the country.

I should not be surprised if, upon my next visit to Luxembourg, I should find both the last word and its preceding word replaced by the name of this freedom-loving land itself. That the motto would read: FOR WITH A FREE LUXEMBURG.

Cloud Gardens in the Tetons

BY FRANK AND JOHN CRAIGHEAD

With Illustrations from Photographs by the Authors

FROM MEXICO, where we were hunting and hot tropical forests, we had returned to Wyoming—to the Jackson Hole valley and canyon roads of snow, to a dazzling whiteness scarcely toned down by forest green, to slightly subfreezing temperatures.* Our wives, Margaret and Esther, had waited for us in a log cabin on the Snake River.

Now we were packing our gear in to snow-buried cabins of the X-X Ranch, owned by "Uncle Jim," a homesteader who had arrived in this part of the country in the midst of a snowstorm, with \$17.50 his total capital. The four of us worked in with a load at a time.

Taking off our packs, we read the sign on the door. "If I'm not at home, I'm off fishing. If I don't come back, see if you can make a living off the place."

Old Jimmy was home, however, and welcomed us with a dinner of elk steak, fried potatoes, potatoes, muffins, coffee, and the remark, "Come and get it."

Wilderness Fun Even in Winter

During the following weeks the spring sun slugged it out with gray snow flurries that coated down the canyons of the Tetons and attempted to spread over the valley.

Although looking forward to spring, we were not anxious to see winter go. There were skiing and ice fishing. There were wonderful light snows for tracking mink and marten, or for reading the story of beavers at work.

The deep snow blanket slowed down the gaunt moose and elk so that we could overtake and photograph them from snowshoes. On one such chase Frank pressed a cow moose and her yearling too close and went up an aspen tree as she turned and charged him.

Days of fly-fishing from snowshoes, when we froze the trout beside us as fast as we pulled them in, passed all too quickly. As if by magic a hot sun burned the snow blanket until the tops of the fences showed, then the tips of the sagebrush.

Warm winds whipped away the evaporating moisture, while the porous glacial soil absorbed the melted snow and slowly released it to the Snake River. Almost overnight spring had come to the valley, and winter slowly receded up the mountains.

Buttercups turned the first bare ground to a glistening gold. Shaggy, ill-tempered moose dragged out of the Snake River willow bot-

tombs, waded into the unfrozen beaver ponds, and dally grew warier as they gained strength and flesh from the slimy green algae.

Grouse drummed in courtship day and night. Seldom glimpsed, Wilson's snipe performed their evening nuptial flights, their directionless, winnowing whistles seeming to come from dead trees in the swamp, from steeped spruce trees, from the dusky sky directly above, or from low in the sedge-lined channels leading to the beaver houses.

A lonesome saw whet owl calling vainly and monotonously for a mate, the hoots of nesting great horned owls, the ripples left by rising trout, aspens turning green and willows red—all said that winter snows had retreated for another short half year. A move to summer cabins on the SIS Ranch, owned by two naturalists, the Marie brothers, placed us within sight and sound of this and much more.

With the appearance of the first buttercups, spring came to the valley. We checked out camera equipment, got together flower presses and vasculum, and, with permission from Grand Teton National Park officials, prepared to photograph the alpine flowers (map, page 813).

Snow still lay deep on the mountains, the flowers dormant beneath it. However, we could start photographing mountain-climbing flowers such as the buttercup glacier lily, and spring beauty that bloom first in the valley, then follow the receding snows up to timber line. There were also valley flowers, the earliest bluebells and larkspurs.

Supplies Must Be Light

To back-pack up to the alpine regions we had to select a minimum of equipment, with emphasis on lightness and utility. We started with the food. On a smoke rack open to the sun we placed salted strips of beef. The combined action of sun and aspen smoke

* Frank and John Craighead wrote for the *National Geographic Magazine* their experiences as young hobbyists hunting and taming wild birds. "A Bird on the Edge of Time" July, 1937, and "In Quest of the Golden Eagle," May, 1940. Through the first story they received an invitation to visit a royal fellow-falconer in India, and the story of their adventures, "Life with an Indian Prince," appeared in the *National Geographic Magazine* for February, 1941. Frank's Navy service is recounted in "We Survived the Great Atoll," January, 1945. Craighead of Penn State College, they are at present working on their Ph.D. degrees at the University of Michigan.



Braced on the Edge of Precipity, Frank Chisland Collects a Rare and Lovely Alpine Flower

A deep snow-patch on the mountain side, near the base of the cliff, is the only place where the rare and lovely alpine flower grows. The person in the photograph is standing on the edge of the cliff, leaning forward to reach down to the snow-patch. The background shows a misty, mountainous landscape.



From Tidy Mountain Camps the Grizzlies Returned a Wild Primitive World

In early spring and summer expeditions they explored the central section of Grand Teton National Park. In its 150 square miles of rugged brownish granite, the park includes the highest peaks of the snow-toothed Teton Range. To make this majestic range elemental forces in recent geological times heaved and broke a point partly thick. Ice Age glaciers, carving alpine peaks and gouging deep canyons, heaved the continent's most jagged skyline. Headwaters of the Snake River excavated near-by valleys. Dotted lines on the map mark the chief park trails; the expeditions' camps were temporary.

produced jerky, tasty dried meat now greatly reduced in weight and volume (Plate 111). Hard and tough as chips of wood, it was stored in cloth bags. Fish were likewise salted and dried to the brittleness of crackers.

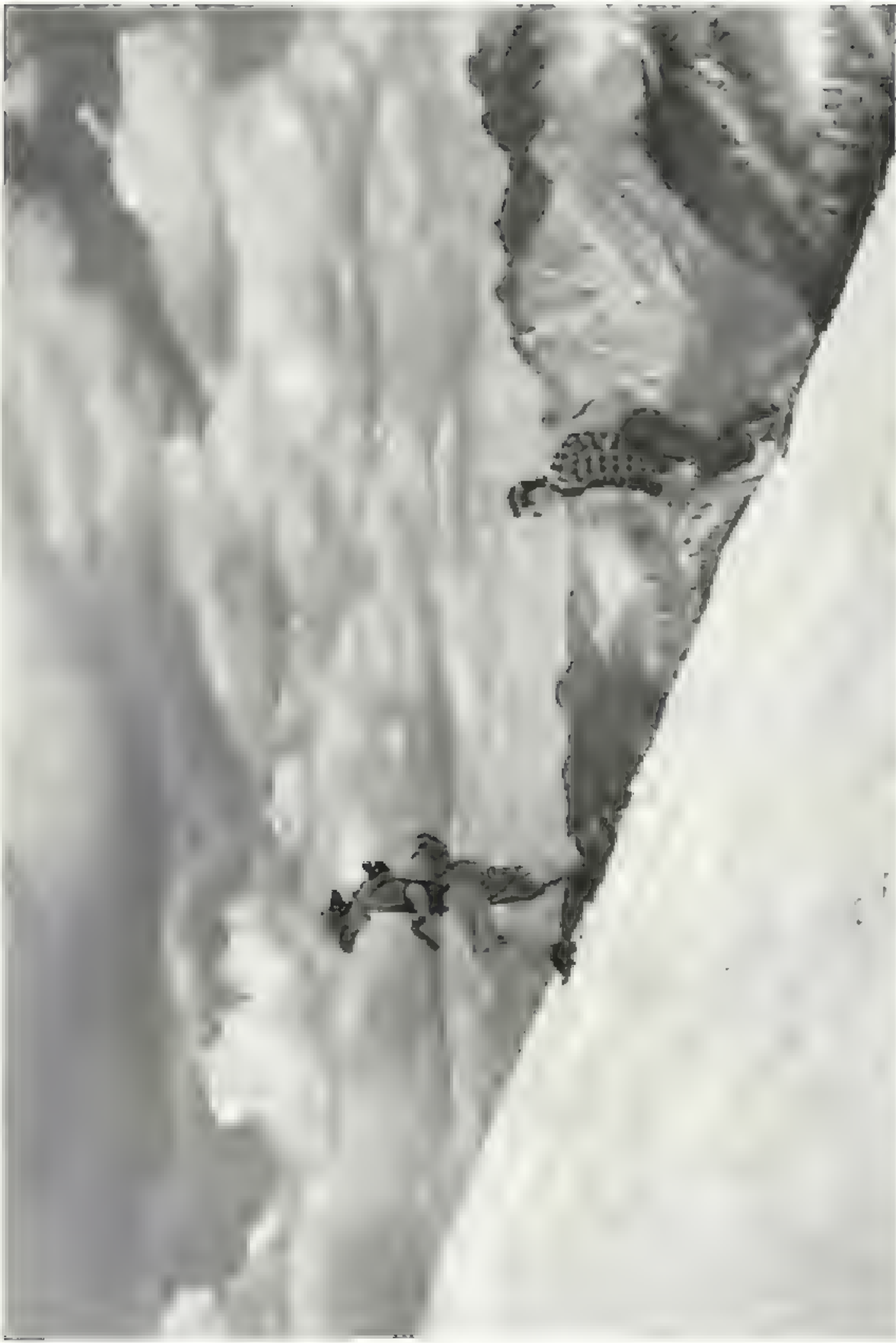
Corn and wheat were parched, dried foods such as peas, potatoes, soups, milk, prunes, and raisins were purchased, as well as rice, flour, noodles, and corn meal. Concentrated quick energy foods like sugar, honey, nuts, chocolate, and peanut butter were added.

When the bulk and weight of our food could no longer be reduced, we turned to other items. Our tent, a light waterproof nylon tarp, did extra duty as a pack. Kipped with removable chest and shoulder straps as well as tumpline, it functioned as efficiently as a pack board. The nylon rope of the pack rigging would also serve for pulling our tarp tent (page 628).

A buckle instead of an ox, a half-size flower press, 35-mm. cameras, light metal tripod, thin aluminum cooking utensils—all lowered the ounces that grew to pounds as, one after another, items of equipment were added or discarded on a basis of weight.

When joined by our friends Dave Spencer and Bob Patterson, and Bob's wife Hazel, we started on our first trip. It is an unwritten law of the mountains that those who venture into them on foot must carry their own gear. Wives are no exceptions. Thus the girls were carrying packs as large as ours but not as heavy, the difference being due to additional food we had offered to carry for them.

From the sage-cush of the valley we followed the trail over glacial moraines caked in lodgepole pine, and climbed gradually up Cascade Canyon into the subalpine zone of



Rock and Forests Atopped to Steep Slopes and Thin Air They Hunt the Alpine Woods First Following Steps of Spring



Sea stack in Sound, near the mouth of the Sound, T. G. and C. G. for the Sound's Port of Call



A Warm Smile Relieves the Icy Coldness of Her Mountain Foot Bath

With a warm smile, a water-pail on her head, and sweater as she fishes trout feet in a brook, the young woman is a picture of contentment. She is sitting on a rocky outcrop, looking down at her feet in the water. The background shows a vast, open landscape with distant mountains and a body of water.

with a water-pail on her head. In late afternoon, just when the surface water had warmed sufficiently for the trout to feed, the girls took our only two fly rods and headed for the open inlet. Just too late, we returned from photographing with the same purpose in mind. The tables turned we started preparing supper.

Campers who don't cook their own meals must eat the concoctions of companions. Every camper seems to have a favorite gulash that is like ambrosia to his whetted appetite but tastes just as it looks to everyone else. Bob's was so-called zoe pudding: sticky undrained rice, raisins, and prunes.

At the first helping the girls regretted having left the cooking to us. To prove the mess was edible, we continued to consume one cupful after another long after the girls had called quits. In the meantime there was no argument when we picked up the rods.

For breakfast we had the west side of trout that had passed more than half their lives in the water. We and snow.

Between sunrise and 8 o'clock there was a period of calm. No wind, but a few white, woolly heads of the long, thin stemmed bistort. The fringed grass-of-Parnassus stood upright and motionless.

The light was bright, the shadows soft. It was the time of day when we set up our cameras, took a picture, and moved from one flower to another. Along with the heat of the day came the winds, persistent breeze that would slow down, cease for an instant, then tantalizingly start up, stronger than before, making photography difficult.

Nevertheless, our list of photographed flowers grew—globe-flower, glacier lily (or adonis-vulgaris—late V.), marsh marigold, Smilax, P. tentata, white mountain heather (not a real heather, despite its name).

shooting star, phlox, *Polemonium*, and erigerons. Our flower press expanded so that none of us wanted to pack it down the mountain (page 828).

Each day took us over miles of mountain meadows, up the peaks to the farthest penetration of seed plant growth, and often on to the summit for the fun of it. Sometimes together, at other times widely separated, we crossed the talus slopes, climbed the snow fields and glistened down them, explored cliffs, ledges, and chimneys for new flowers to collect and to photograph.

Our legs no longer complained of the day's exertion; our lungs adjusted to the rarer atmosphere. We felt like staying forever up in the clouds, in the invigorating air, in the rock gardens above the valley.

As our appetites increased, our food supply dwindled. We supplemented it with fish, mountain sorrel greens, and the green pods of glacier lilies, but the inevitable faced us. We must temporarily leave the cloud gardens and descend to the valley for more food, more film, and a fresh start.

Back to the Peaks in August

In August we were again in the mountains, camped this time near the head of the South Fork of Cascade Canyon, where two streams originating in snow fields above us formed a V on joining.

We were at timber line, and above us towered a tremendous limestone wall the stratified structure of which contrasted with the Pre-Cambrian granite of the Teton peaks. Beyond it lay picturesque Alaska Basin, tucked away in the Targhee National Forest. This calcareous soil would support flowers we had not yet found and photographed.

Above the cliffs and peaks, birds swooped, soared and wheeled on rising air currents while hunting the treeless flower meadows below. Swainson's hawks, ferruginous rough-legs, sparrow hawks and prairie falcons maneuvered apparently unhampered in the rarer air at 11 000 feet, while the golden eagle soared to 15 000 and above to look down on the peaks of the entire range.

Cliff swallows and ruby finches nested on cliff faces and in crevices above timber line. Lower down, pipits and white-crowned sparrows were hatching their young in the sprawling matted fir growth. In the rock slides conies or pikas, were harvesting flowers, piling and curing them in colorful scented "haystacks."

A hot, dry spell had brought the alpine flowers to the height of their blooming season several weeks early. The dryness was likewise

rushing to a close their already short lives. Fields of golden mountain sunflowers, lavender erigerons, yellow, pink, and scarlet paintbrushes, dark-blue lupines, sweet vetches, mountain roses, stonecrops, various colored mustards and anemones seemed to be vainly struggling to flower and produce seeds.

This rush and hurry proved contagious. We were forced to fall into the swing in order to photograph the numerous flower species while their brief glory lasted.

As we took up the challenge and entered the race, camp life was streamlined. Dave would perhaps start a fire the girls would cook breakfast and portion out food for lunches (page 816).

John would take advantage of the early-morning sun to photograph a flower. But would secure the tents and protect our gear from possible storms. We'd then eat a breakfast built around cups of oatmeal or cornmeal mush and be off, sometimes to locate new flowers, sometimes to hurry to a previously located flower, timing our arrival to coincide with the best light conditions.

In the evenings we would drop down from the peaks, the ridges, and the high saddles to our timber-line home. Sometimes we would cross the snow fields on our feet or angle down the steep, rocky talus slopes in long bounds. All of us returned hungry and tired.

While supper was cooking, we pressed our flowers and keyed out strange or doubtful species in our books. Sometimes we finished writing notes by firelight. Each evening we would add to our list the new plants photographed. On days when weather conditions were poor, we would chalk up only two or three; on our most successful day John and Margaret photographed 30 different species.

Thrilling Quest of Purple Saxifrage

While Dave and Frank keyed plants and wrote notes at camp, John, Margaret and Bob started off for Alaska Basin, photographing each new plant they encountered. They hoped to find on the high, rocky ridge the small purple saxifrage, *Saxifraga oppositifolia*. The day before Dave and Frank had covered 20 miles of high ridges and slopes, looking for it with no success.

This tiny alpine flower was of special interest, because it not only perches high on the mountain slopes of the Rockies but is found in similar habitats in the Alps and the mountains of northern Europe and Asia. As an old friend, this hardy adventurer greets the mountain lover on the Grand Teton and on the Matterhorn.

John, Bob, and Margaret dropped down



7 Billowing Clouds over the Tetons Herald a Storm's Approach

Early in the morning the wind had been calm and clear, but now a heavy rain cloud had gathered over the mountains, and the wind was blowing from the west. The clouds were billowing and the wind was blowing from the west.

Illustration by the artist.

At Last Panhandle and Beaming Urgency Invite a Visitor to Rest
For a Moment on the Mountain's Summit, and to Enjoy the View





Glenn, 11 yrs, First to 10th Spring, Not Denarely Beside Lake Saline

3



31 Sun and Aspen Smoke Tunnels Pack into Easyshipack Jockey

The Sun and Aspen Smoke Tunnels are packed into the Easyshipack Jockey. The Sun and Aspen Smoke Tunnels are packed into the Easyshipack Jockey.

Three Fish! Avenor Work with Race Horse Proves a Success & Endorsement

The Avenor Work with Race Horse Proves a Success & Endorsement. The Avenor Work with Race Horse Proves a Success & Endorsement.





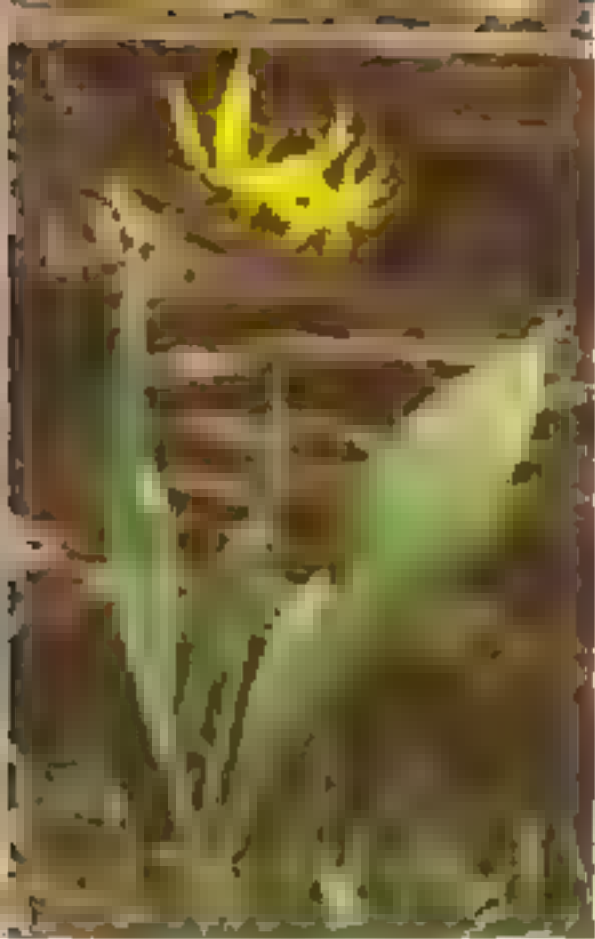
3. Give Colors from Nature's Palette Brighter a Harsh Environment

It is a common sight to see a plant with a single flower of a different color than the rest of the plant. This is often the result of a mutation in the plant's DNA. The plant's leaves and stems are often a different color than the flowers, and the plant's overall appearance is often more vibrant and colorful than the surrounding plants. This is a natural phenomenon that occurs in many different plants, and it is a beautiful sight to see.

Take A Closer Look: Red Monkey Flowers Give Posh a Carry-on Stream

The red monkey flower is a beautiful plant that is often found in the mountains of the United States. It is a member of the Mimulus genus, and it is known for its bright red flowers. The plant is often found in the same place as the yellow monkey flower, and it is a beautiful sight to see. The red monkey flower is a beautiful plant that is often found in the mountains of the United States.





Handy Flowers of the Teton Game and Bloom Quickly

These flowers are very hardy and bloom very early in the season. They are very common in the Teton Game and are very hardy. They are very common in the Teton Game and are very hardy. They are very common in the Teton Game and are very hardy.

Yellow Butterflies Love Their Blooms on Mountain Grasses

These flowers are very hardy and bloom very early in the season. They are very common in the Teton Game and are very hardy. They are very common in the Teton Game and are very hardy. They are very common in the Teton Game and are very hardy.





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Three Boys, Three Girls, and Three Dogs are the only ones who

are not in the picture.





Down He Goes! Frank Goodspeed's Tale Tells of a Slender Rope

The descent of Mount St. Helens, the first of the great volcanic eruptions of the century, was a feat of courage and skill. The story of the descent is told in the following pages.

below timber line on the slopes that carried the mountain rain and melting snows out to the plains of Idaho. *Oppositifolia* had eluded them all morning, and at noon they decided to climb back to the divide, then follow it south in their search.

A half hour of upward plodding, and they stopped to debate. A storm was rolling in from the southwest, and thunderstorms mixed with mountain peaks and ridges produce trouble. Should they risk entanglement in such a brawl?

The storm, they argued, might be deflected by a peak or pass through a canyon, missing them completely. Once on top, they could perhaps drop down the far side to shelter and leave on their own terms. They decided to go on climbing.

The onetime distant thunder was soon breaking directly overhead. Clouds rapidly dwarfed the view. Almost at the top they turned back. The air was charged, crackling. Lightning stood their hair on end, made their teeth ache. The wind came in violent gusts. Lightning struck close by, leaving a strong ozone smell in its wake. They raced for timber line.

A band of elk crossed their path, likewise headed down. Again the lightning struck. John thought of temporarily abandoning his metal tripod and camera as a lightning played up his arm, but he could find no protection for it. Rain and hail flailed them as they crawled into timber line lean-tos, natural shelters beneath the thick matted roofing of stunted firs.

It is in such places that mountain sheep and elk bed down. Gnarled ageless, dwarfed trunks support a thick mat of foliage flattened and contoured to the mountain by prevailing winds and heavy snows. Streamlined to meet the blasts of a century of storms, they took this one as they had all others. Rain and hail, like force spent on the cushion of needles, trickled down to the dry soil below.

Thundering and muffled, the storm moved quickly on, tagged by the sun reflected in a million water crystals adhering to the flowers. The scattered hail soon disappeared.

Elusive Flower at Crest of Ridge

Climbing again, the plant hunters made the ridge. On top they stopped to photograph a beautiful tiny member of the Mustard family, *Draba*. Its yellow blooms were still sparkling from the rain.

On the highest rise on the ridge, the top of the limestone wall, they saw, at last, the light-purple flowers of a single clump of *oppositifolia*. The search was over.

John set up his camera, moved it as close as he could to the diminutive flowers, and took a picture. Margaret curled around the plants to shield off the wind.

Evening was at hand and camp was a long trek away, unless they could take a straight course, a short cut. The wall in front of them dropped 1,000 feet to the canyon floor. A long detour would take them down there, with yet another high saddle to climb before dropping into Cascade Canyon and camp.

But from a break in the precipice they could reach a wide, sloping, snow-covered ledge running horizontally across the lower cliff face. If they could follow this over to the saddle, they would hit a long, steep snow slide and could glissade almost into camp. It was worth a look.

They climbed down to the ledge, following tracks of elk caught in the storm. At the ledge the elk had stopped, backtracked, and sought another route of descent.

Short Cut Proves Perilous

John, Margaret, and Bob hesitated. The ledge had a 50-degree snow slope. Without ropes and an ice ax it was dangerous. It was also shorter. One slip, a short slide, and they would drop over a cliff varying from 40 to 100 feet and land on a nearly perpendicular snow slope that ended in a mass of huge boulders.

John thought they could make it. Margaret and Bob were not sure. Another storm struck, sweeping over the wall from the west. They waited it out, huddled against the precipice for protection. When it passed, the canyons were in shadow. Only the peaks reflected the sun.

They decided to try the short cut—cross the ledge. John handed Margaret the tripod to use as an emergency ice ax. They moved slowly, kicking each foothold in the crusted snow slope.

The ledge was cut by deep crevices formed by water constantly freezing and expanding in confined cracks. Tremendous sections of it were false fronts of millions of tons of limestone rock pried loose from the mountain proper and getting ready to fall. They might cling another 50 years or fall tomorrow—tonight.

Margaret slipped, fell, dug the tripod in, and stopped. That was enough. John took chances, but he didn't like Margaret taking them—not when he had to watch.

They retreated, following their ice steps back, and descended a chimney to the snow field. Then they took out in a glissade that shot them downward, three blurred figures barely discernible amid sprays of snow.

Their eyes watered; their feet barely



Evening Brings the Job of Classifying and Pressing the Day's Flower Take.

The person in the photograph is working on the flowers that were taken during the day. The person is sitting on the ground, surrounded by a large pile of flowers. The person is wearing a light-colored shirt and dark pants. The background shows a dense forest with tall trees.



Nylon Tarp and Fresh-cut Fir Branches Keep Sleepers Dry. Top and Bottom.

The person in the photograph is sitting on the ground, surrounded by a large pile of flowers. The person is wearing a light-colored shirt and dark pants. The background shows a dense forest with tall trees.

reached the snow. An icy lamp with it cut them off the surface for 70 feet. A shift of a foot or three heels made the snow so more thickly, strained leg muscles, but served as a brake. A turn of the toes started them on a traverse or guided them to either side of an ice rift.

A second on the snow saved minutes and in over rock. They were off the cliff, they were safe on the canyon floor, but it was not the camp canyon. A final climb up and over the saddle, a long hike down in the cañon, and they were home. Tired, hungry, but happy. Opposite had been added to the list.

A Sure Cure for Worn-out Nerves

The campers were only for turn and a little of the peas up, a hot soup, and a batch of hot biscuits baked in a new pot over

Dave made a soup of dried potatoes and whipped them with dried milk. Esther cooked the soaked prunes we were saving for breakfast and put out butter and peanut butter for the biscuits. Fragrance of coffee permeated the air. John, Margaret, and Bob dug into the meal, and the others ate along with them.

The ketles emptied and our hunger satisfied, we sprawled contentedly around the fire, leisurely sipping coffee. Bob broke the evening silence: "How could this be better?"

John answered: "It couldn't."

Dave was silent, but his eyes agreed.

They meant all that made up this way of living—this fulfillment of long-cherished hopes. They were thankful for the peace and quiet, for the serenity that had been



Ice Ax and Bare Hands Help Climb a Snowfield's Steep Ascent

High in Casper's Canyon on the steep ascension, John and Margaret were head hit snow. But the food picked remains of an ascent by. After the melting whiteness of the snow, the snow was on still by Lake Solitude they scaled snowfield. The snow was on still by Lake Solitude they scaled snowfield.

preserved for us and for all Americans who come to see them.

Could our delighted men responsible for our public land system of paths and forests have looked across our campfire and seen the summer in this environment had ceased the war lines in Bob's face, the tired look in his eyes, they would have felt repaid. More than four years' duty on a destroyer from Pearl Harbor to the Indian Sea were being forgotten. Dave's gaunt face was filling in. The strain of flying was gone. He was again as we had remembered him.

Lightning was playing among the storms that had been quelling around all day.



A Thawing Glacier Hints at the Bulldozing Power That Carved the Teton

The glacier has been a bulldozer, pushing down the mountains in its prime. During the last century it has been pushing down the mountains of the Teton Range. Much of the range is now a vast, open plain, and the peaks are the only remnants of the mountains that once stood at the foot of the range. The Teton National Park is now a vast, open plain, and the peaks are the only remnants of the mountains that once stood at the foot of the range.

seemed to have faded as if in one swirling mass of clouds and searing flashes. A brief stillness settled around camp; the white-barked pines stopped whispering, and we could hear the trickling of the stream.

In full accord we rose simultaneously, checked tent ropes, threw a handful of dry kindling under a tent, piled rocks on cooking embers, placed cameras and film in waterproof bags, and crawled into our shelters just as the wind zoomed over the wall with a roar and dashed down into the canyon, driving the rain with it.

We were in a huge rock bowl with the wind as a mixer. It seemed to take the corn, fruit, and thunder, rocks, trees, the tents, and ourselves, mix them thoroughly, and wheel the contents off into a darkness vibrating with thousands of discordant, dithering sounds.

The storm's fury was so awe-inspiring that we lost track of time, date, and direction and

were surprised, as the onslaught slackened, to see that we were still under a tent, and still hilly, but with our rolled-up beds and equipment relatively dry.

The next morning light snow covered the peaks and clouds filled the canyon. They drifted low over the alpine gardens. They let the sun through here and there, but never for long. The mood of the mountain had changed. Water was in the soil, moisture in the air. The plants responded. Their flowering season had been lengthened. For a few days more they would color the landscape.

But the snow had started down the mountain. It would descend into the valley leaving water just as inexorably as it had arrived, leaving spring behind. The beauty of the alpine flowers would lie dormant for many months, awaiting the time when they could again enrich the mountain with their color and life.

Mapping the Nation's Breadbasket

By FREDERICK SIMPICH

IT WAS June. Flying west over Lake Michigan, one or two planes in the skies, we saw Chicago's towers suddenly poke up from the blue water. It was as if from *Queen Mary's* rail, on some Atlantic crossing, you might behold a glistening city lift itself from ocean's depths.

Seconds later we looked down on the elevated railroad circling the Loop, pounding heart of this monster city.

There was the 43-story Board of Trade Building—topped by the figure of Ceres, goddess of grain—where at 9:30 every morning a bell chings to open the big grain market, shouting brokers buy and sell, and tickets flash to distant farmers news of changing prices (page 834).

In another minute we were over spreading Union Stock Yards, host last year to 6,630,000 cattle, horses, hogs, and sheep. To this world's greatest sales pen trains roll in from all over the Midwest, helping make Chicago the busiest railroad center ever known. In and out of it passenger trains run at the rate of one a minute, and every day some 45,000 freight cars hit its busy switches.

One of Earth's Great Producing Areas

On a map of the North Central United States, published with this issue of the *NATIONAL GEOGRAPHIC*,* you can see how rail, highways, rivers, and canals link Chicago with such other busy Midwest cities as Cleveland, Indianapolis, Milwaukee, Minneapolis, St. Louis, Kansas City, Topeka, Lincoln, Omaha, Sioux Falls, and Des Moines (page 850).†

The map shows how, by the Mississippi River and connected inland waterways, cargoes of wheat ride from Minnesota down to the South, and southern oil or sugar goes upstream to Omaha or Minneapolis. In water-borne commerce with ports as far away as Houston, Texas, the Chicago Harbor District, using the canal that connects Lake Michigan with the Illinois River, moves about as much freight as passes through the Panama Canal.

As for air mail and air travel, there's hardly a sizable town from Ohio out to North Dakota or from Wisconsin down to the Missouri Ozarks but has its airport or is in easy reach of one.

It takes these many trains, planes, trucks, and barges to handle Midwest commerce because, mile for mile, State for State, no equaled on our planet yields such farm wealth. Its industrial wealth is also enormous.

Consider our Corn Belt alone (page 839). It reaches west from central Ohio, takes in most of Indiana and Illinois, parts of Missouri, nearly all of Iowa, and parts of Kansas, Nebraska, South Dakota, and Minnesota. This almost level area is more intensively cultivated than any other of its size in the entire Nation.

Where Tall Corn Turns to Meat

Nature made Iowa one big cornfield. Climate, depth and richness of porous soil, and quality of seed bring average yields of 50 or more bushels per acre, and record crops up to 150 bushels. This corn is mostly fed to stock and sold as meal.‡

With 93-percent literacy, Iowa is famed for excellence of schools, its experiments in finding new uses for farm products, and, notably, for the work of its State College at Ames in producing better pigs. It leads all States in corn, oats, hogs, and eggs.

In value of farm products, Iowa runs up and tuck with California first one's ahead, then the other. Texas raises more cattle, but more are fattened in Iowa than in any other State.

But you have only to look at costly farm machinery, fat, sleek stock, well-painted houses and barns, fine roads, and all the shiny automobiles to see what good country life this Corn Belt puts in reach of farmers who mix brains with sweat.

Nor does Iowa, or any other Midwest State, think only of plows, cows, pigs, hens, and manure. Des Moines, for example, sometimes called America's farm capital, is noted for its farm papers, for J. N. ("Ding") Darling's protect-our-wildlife cartoons in the *Register*, and for its share in making or selling some of the washing machines, fountain pens, cosmetics, farm implements, lawn mowers, vending machines, and railway equipment which Iowa produces.

* Members may obtain additional copies of the new map of the North Central United States (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices: in United States and Possessions, 50¢ each; on paper; \$1 on linen. Index, 25¢. Outside United States and Possessions, 75¢ on paper; \$1.25 on linen; Index, 50¢. All remittances payable in U. S. funds. Postage prepaid.

† See "Illinois, Crossroads of the Continent," by JORDIS B. WOOD, *NATIONAL GEOGRAPHIC MAGAZINE*, May, 1931.

‡ See "Iowa, Aiding Place of Plenty" by LEO A. BORAH, *NATIONAL GEOGRAPHIC MAGAZINE*, August, 1931.



Weeks Spent and Cost/acre in Chicago's District, Greenhouse, Winter 19

With regard to the effect of the size of the sample on the results, the results of the 2000 survey are shown in Table 1. The results of the 2000 survey are shown in Table 1. The results of the 2000 survey are shown in Table 1.

Learn the value with our up to date My
Life Menu

the 1990s, the only national health insurance system in the world. In 1998, the government introduced a new health insurance system, the National Health Insurance (NHI).

[illegible]

Sound of Lakes, Broad Bottom Iron

The 2000 census shows that the population of the state is growing rapidly, with a projected increase of 1.5 million people by the year 2010. The state's population is projected to be 2.5 million in 2010, up from 1.0 million in 2000. The state's population is projected to be 3.0 million in 2020, up from 2.0 million in 2010. The state's population is projected to be 3.5 million in 2030, up from 2.5 million in 2020. The state's population is projected to be 4.0 million in 2040, up from 3.0 million in 2030. The state's population is projected to be 4.5 million in 2050, up from 3.5 million in 2040. The state's population is projected to be 5.0 million in 2060, up from 4.0 million in 2050. The state's population is projected to be 5.5 million in 2070, up from 4.5 million in 2060. The state's population is projected to be 6.0 million in 2080, up from 5.0 million in 2070. The state's population is projected to be 6.5 million in 2090, up from 5.5 million in 2080. The state's population is projected to be 7.0 million in 2100, up from 6.0 million in 2090.

Видеосъемка — метод исследования, позволяющий

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Further, the authors note that the results are consistent with the hypothesis that the effect of the intervention is mediated by the change in the number of cigarettes smoked. The authors conclude that the intervention is effective in reducing the number of cigarettes smoked, and that this effect is mediated by the change in the number of cigarettes smoked.

The Board of Trustees, State and Federal Museums,
 United States Department of Agriculture, Bureau of
 Entomology and Plant Quarantine, Washington, D.C.
 20250

1. *Maximum* – Maximum value of the function
 2. *Minimum* – Minimum value of the function
 3. *Global* – Global maximum/minimum value of the function
 4. *Local* – Local maximum/minimum value of the function
 5. *Stationary* – Stationary value of the function
 6. *Extremum* – Extremum value of the function
 7. *Optimum* – Optimum value of the function
 8. *Peak* – Peak value of the function
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 10. *Vertex* – Vertex value of the function
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 12. *Intercept* – Intercept value of the function
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 15. *Axis of symmetry* – Axis of symmetry value of the function
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Carnegie-Illinois Steel Mill and Youngstown Sheet and Tube Works on Calumet Harbor



Old Boats from Lake Superior Unload in Calumet River Part of the Illinois Waterway

Superior, stands near the point where John Jacob Astor built a fur-trade post in 1817.*

Though far off beaten tracks of cross-continent trippers, Duluth-Superior Harbor ranks second among United States ports in total domestic and foreign water-borne commerce, being surpassed only by New York. About 7,000 vessels of all kinds arrive and depart each season.

Hills of Rust-red Ore

More than 60 percent of the iron ore mined in the United States comes from the Mesabi, Cuyuna, and Vermilion Ranges of Minnesota and goes by ore boat to steel mills about Chicago and elsewhere.† In one busy year the Lake Superior district shipped more than 92,000,000 tons!

Wheat, too, leaves this harbor in oceanic volume; 25 grain elevators can hold 50,000,000 bushels. At 20 bushels an acre, that's the crop from a field of some 2,500,000 acres!

What may happen to foreign trade from "the head of the Lakes" to Buffalo if and when the St. Lawrence Seaway Project is completed is a subject now of much debate in all these Lakes cities.

Just now, it's interesting to imagine ships docking here from South America, or even from China, and passengers for Antwerp or Capetown waving farewell from a liner's rail as she edges away from a wharf, say, in Milwaukee or in Port Arthur, Ontario!

Though even few people in Chicago seem to know it, several small ocean-going freighters of Swedish-American and three other lines already use the St. Lawrence between the Windy City and North Sea ports. They bring us wood pulp, canned fish, herring, cod-liver oil, and tulip bulbs, and take back meal, flour, and farm implements.

Many Blonds and Scandinavian Names

All this Minnesota and Dakota country suggests Scandinavia, look at all the blonds, and the Danish, Norwegian, and Swedish names in telephone books!

Likewise in Wisconsin, as in St. Louis, Cincinnati, and other Midwest "racial islands," German names abound. Many early orchestras, athletic and glee clubs, learned societies, and newspapers were founded by German immigrants. But it was the French who came earliest.

Father Marquette and Jolliet were the first whites to land at what now is Chicago. For years St. Louis was strictly a French settlement; the French left other place names, such as De Pere, Eau Claire, Ste. Genevieve, but they faded from the Midwest as permanent

settlers. What might be filling this Breadbasket today had pioneer French remained to rule the Mississippi Valley?

After the French and Indian War, the Revolution, and the War of 1812, migrant American tides rose and flowed through Cumberland Gap, down the Ohio, up the Wabash, the Illinois, the Missouri, as in the days of Daniel Boone, Simon Kenton, and the fur trappers. So many from Virginia settled in southern Indiana and parts of Missouri that to this day these sections have a distinct flavor of southern speech, culture, and social behavior.

Poles, Irish, Italians, Greeks—by hundreds of thousands they too now flavor the Midwest melting pot. But few take to the land; the mines and the great industrial centers chiefly absorb them. Even the oil fields of Indiana, Illinois, and Kansas are worked mostly by Americans of Anglo-Saxon origin.

The Yield of Wisconsin

What a pile of good things to eat Wisconsin dumps into our Breadbasket!‡ Besides grain, it adds butter, cheese, milk, potatoes, sugar beets, peas, maple syrup, cherries, cranberries, apples, and plums. It ranks high in growing dairy cattle and yields hemp and cigar-wrapper tobacco.

Tractors, farm machinery, footwear, textiles, sawmills, motor-vehicle parts—Wisconsin makes them all.

Big paper mills abound. In the State are such factory centers as Milwaukee, with the great Allis-Chalmers plant; also Racine, Kenosha, Junesville, Beloit, and Madison with its famous laboratory for the study of wood and wood products.

With 85,000 miles of highways and 7,000 miles of railway, Wisconsin's scenic regions, similar to Minnesota's, are reached by hordes of summer guests.

At railway terminals in all these bigger Midwest cities you see sleek, swanky new Diesel-electric locomotives lined up side by side, painted like circus wagons. There they stand, as passengers climb aboard the streamlined aluminum-and-steel coaches, ready to whiz across the Breadbasket or race on to New York, New Orleans, or the Pacific coast.

* See "The Romance of American Furs," by Wanda Herbert, NATIONAL GEOGRAPHIC MAGAZINE, March, 1948.

† See "Steel Master of Their Age," by Albert W. Atwood, NATIONAL GEOGRAPHIC MAGAZINE, April, 1947.

‡ See "On Goes Wisconsin," by Glenville Smith, NATIONAL GEOGRAPHIC MAGAZINE, Vol. 47, No. 4, and "Deep in the Heart of Wisconsin," by William H. Nebeker, June, 1947.



Fig. 1. Day for Big Boy and His Mother, Little Village, of Far East, Oklahoma.

Fig. 1. The photograph shows a group of people, including a man and a woman, standing in a field. The man is wearing a hat and a long coat, and the woman is wearing a long dress. They are standing in front of a large, open field. The background shows a line of trees and a distant horizon.



From Textbooks to Trunks! Schoolgirls Take to the Cornfields and Help Pollinate Hybrid Seed Corn near Yankton, South Dakota



Photo by J. C. G. Co. Co.

Color and Design Artists Turn a New Dining Car into an Art Gallery

Most of the top color and design artists in America are now in Chicago for the new Standard Dining Car, which is being built by the Pullman Company. The new dining car is being built by the Pullman Company, which is being built by the Pullman Company. The new dining car is being built by the Pullman Company, which is being built by the Pullman Company.

and Room within the city limits of Chicago. The new dining car over built the Pullman, and a new dining car was built to bring his new dining car to Springfield. Some of the best surprises and things was that the new dining car was built by the Pullman Company, which is being built by the Pullman Company.

Factories Flourish in Illinois Cities

Now, even Illinois, even the smaller cities, has some kind of industry.

Decorative work goes down the main ways when new roads are being built at St. Louis. The new roads are being built at St. Louis. The new roads are being built at St. Louis. The new roads are being built at St. Louis.

Springfield, still capital for the western of Illinois, and its neighbors in time. Of this time, even of his, he was being built for the White House. The new dining car was built for the White House. The new dining car was built for the White House.

State and local business. Many of the new dining cars are being built for the White House. The new dining car was built for the White House. The new dining car was built for the White House.

Men early in the morning, before the sun had to fall, the business for the invention of steel plates and other things. The new dining car was built for the White House. The new dining car was built for the White House.

Some writers get their first work from the new dining car. The new dining car was built for the White House. The new dining car was built for the White House.

The new dining car is being built for the White House. The new dining car was built for the White House. The new dining car was built for the White House.



FIG. 11.

"No Left Turn," "No Parking at Any Time." No Elbowroom at Rush Hour in the Loop

Chicago, Illinois, illustrating the rush hour in the Loop. A dense crowd of people is seen walking through the street, which is lined with tall buildings and streetlights. The scene captures the busy urban environment during rush hour.

and other state. While these have not yet been fully developed, the fact that they are being developed is a sign of progress.

McCormick and His Reapers

More than any other state, Illinois has helped develop the reaper industry.

When Cyrus Hall McCormick could not sell his newly invented reapers in America, he went west.

For in Illinois he found men, women, and children were cultivating wheat even by hand. He saw a need that could be met by his invention. He decided that from the westward must come the mastery of the Nation. So he built a reaper factory in Chicago.

At the time the reaper was, McCormick had already built another Midwest firm.

The reaper was a new invention and it was not easy to sell. An enterprising man, however, was willing to try it. He bought a reaper and took it to the fields. He found it was a great help and he began to sell more. He saw where his business was to be made.

It took a longer time to sell the reaper than it did to sell the new design of the reaper.

But the McCormick reaper was a great success. It was the first reaper to be produced in large quantities. It was a great help to the farmer and it was a great success for McCormick.

One of the most important things in the reaper industry is the reaper. It is a machine that is used to cut the grain. It is a great help to the farmer and it is a great success for McCormick.

motor trucks, corn and cotton pickers, road machinery—dozens of labor-savers to handle food crops faster.

From the Midwest's old-time country fairs, with trotting races and displays of fat pigs, big hulls, and prize-winning hens in "cackle berry" contests, came such now-famous shows as Kansas City's "Royal" and the International Livestock Exposition at Chicago.

I saw the latter in 1947, when 12,500 fine animals took part. For them it is like an Atlantic City beauty parade (page 838).

With ribbons in their tails, high-stepping horses proudly pull shiny buggies driven by haughty women in mink coats. Jumpers go gracefully over the bars or tick one with a careless hoof. Sheepshearers work like sculptors hewing marble; they clip away natural curves, leaving little baa-baa squared off into a cube of snowy wool.

Dear-paw judges tie blue badges on broad-beamed hulls admired even by kilted cattle fanciers from Scotland. Prizes go to hogs too fat to stand.

From boxes, owners and guests clap and cheer a shapely heifer while the band plays on. Chicago, too, exalts the golden calf.

I met exhibitors here, old friends, from as far west as Cheyenne. Iowa, Missouri, Illinois, Texas, Indiana, all were here, including crowds of 4-H Club boys and girls.

I hoped encounter a Hoosier delegation—maybe I feel close to them because my mother's Scottish parents settled early in Indiana. One of her girlhood memories was of the Chicago Fire of 1871, when smoke and the smell of burnt wood drifted as far south as Terre Haute and beyond.

Versatility of the Hoosiers

Hoosiers not only write poems and novels, play football, and race cars on the Indianapolis Motor Speedway; they make some of the world's finest fishing tackle and brass band instruments.*

Despite that Bible warning, they also built a great city on the sands. That's Gary, with giant steel mills. It has been called "America's most powerful concentration of industry."

Here beside Lake Michigan, on swampy sands and dunes, Hoosiers pumped enough silt from the lake's bottom to lay a 15-foot blanket over many thousands of acres; then, on additional acres, they hauled in trainloads of black soil, set out shrubs, trees, gardens, and built homes, schools, churches.

Though Indiana has no active iron mines, she imports so much ore that steelmaking is her biggest industry. Here at Gary rise the tall smokestacks of U. S. Steel, Republic

Steel, and many allied groups making sheets, rails, bolts, springs, tin plate, etc. The Carnegie-Indiana mill alone covers 2,400 acres.

As mine and more iron ore came south by lake boat from Michigan and Minnesota, more steel mills rose in this area, spreading west to Whiting, East Chicago, and Hammond, known now as the "Cities of the Calumet." This area ranks second only to the Pittsburgh-Youngstown district in production of ingots. You see here how our industrial power tends to move westward (pages 834-5).

But the moon still shines bright along the Wabash; there's still that scent of new-mown hay. Hog and hammy is still good Hoosier fare, and if you'll go down to the Indianapolis stockyards some summer morning about 4 o'clock you'll see trucks rolling in from every direction, bringing fat hogs and beetles. Some of earth's most succulent hams and bacon are cured right here (page 849).

Indianapolis, Hub of Hoosierland

As our map shows, railroads and highways run out from Indianapolis like the spokes of a wheel. This is the largest American city not built on navigable water. It proves how highly industrialized the Midwest has become.

Among the Nation's larger manufacturing corporations which have plants here are General Motors, Swift, Armour, U. S. Rubber, Western Electric, American Can, RCA, Borden, Coca-Cola, and International Harvester.

Factory output of insulin, animal serums, saws, chains, and inner tubes is enormous.

Some of James Whitcomb Riley's lines make Hoosiers sound like indolent, carefree folk, like "Hoosier Hot Shots" on the radio.

Don't be misled! Housewives who make jam know about those glass fruit jars made in Muncie. The Studebakers were making wagons for our Army and for British use in the Boer War long before they built motor-cars.

Interesting people may be the chief product. I don't mean just that "Irish" football team at Notre Dame. General Lew Wallace, Theodore Dreiser, Ernie Pyle, Booth Tarkington, George Ade, Meredith Nicholson—they were Hoosiers. So are Kent Cooper, George Jean Nathan, Byron Price, Elmer Davis.

In the Brown County hills in "Abe Martin" country, painters are thick as pawpaws in September.

Vincennes, on the Wabash, is the oldest Hoosier city. Catholic priests in its historic church showed me documents dating from French times. Great Britain got Vincennes

* See "Indiana Journey," by Frederick Simich, *National Geographic Magazine*, September, 1946.



In Chicago's Lincoln Park Zoo, Bushman, 550-pound Gorilla, Manches Grapes

Look at the face of this gorilla, the largest of the great apes, and you will find a face that is almost human. It is a face that has been seen in many places, and it is a face that has been seen in many places.

from France after the French and Indian War. The result of that war between Virginia and the British. To stop the latter from leaving a foothold in this West, Virginia sent George Rogers Clark with 350 Irish, English, and American soldiers, who after two trials took the fort.

Virginia's first state was the first state of the United States. Here now is the famous George Rogers Clark Memorial, which is a gift from the new Jefferson Memorial at Washington. Also, the state has the most famous monument ever erected to Lincoln. It is a large statue at the end of the Lincoln Me-

morial. It is the first of the Walash and shows him walking on the deck, carrying a rifle and his journey through the Virginia in 1861.

Paper- 100 Curleds a Week

John Merrill, the inventor, has just his head office in the city.

At a large plant in the city, the first of the new paper is printed in a factory of R. B. Dorr, & Son, Chicago.

Dennedy's - Late of the Press and the day and night. The new and the press, including giant color and the new and the new parts, are now in the city.



A Mirror Doubles the Eye Appeal of Apple in a Bread

The bread here is not a loaf but four square loaves, all of which are sold in a single package. The bread is sold in a grocery store, and the overhead mirror is a very effective one. It shows the young woman behind the counter and the bread on the counter, and we just how the young woman is fixing the platter.

Yesterday, got a up paper at the rate of more than 100 carboys a week.

For include more than 50,000,000 catalogues a year for mail-order houses; telephone directories for Chicago and many other Mid-west cities, and some 40,000,000 copies a month of printed wages for the middle class. Also prints tons of Bibles, school-books, and other editions.

Printing Mail-order Catalogues

America's catalogue-printing business began with Montgomery Ward's catalogues using 12 carboys of ink a year. Its largest

catalogue alone for one year had printing work of 250,000 copies.

At his work in New York, the postmaster once told me he spent most of his time helping buyers with all money orders of 100,000 and 100,000, and putting out bundles when the goods came.

Sears is the biggest mail-order house, though it really sells much more through its retail stores, some of which it has built in Latin America.

But Ward's is the older. I looked at its first catalogue, printed in 1872. Hollywood



U.S. DEPARTMENT OF AGRICULTURE

Here Customers Study Changing Tides of Market-bound Hogs, Cattle, and Sheep

The public here will find the Live Stock Exchange a most interesting place to visit. It is a place where the tides of the market are studied and the future of the industry is forecast. The exchange is a large, modern building with a high ceiling and large windows. It is a place where the tides of the market are studied and the future of the industry is forecast.

and a large crowd of people. The exchange is a place where the tides of the market are studied and the future of the industry is forecast.

In 1875 a man could afford a new suit of clothes for \$4.50! A good horse for a "castle with 3 springs" for \$5.00, or a good sidesaddle for \$4.85. Even the President could get a modern suit for a few dollars and a good range.

Today the man who model dresses for Wall Street and the pictures bring floods of gold. The man who model dresses for Wall Street and the pictures bring floods of gold. The man who model dresses for Wall Street and the pictures bring floods of gold.

Every one of these larger Midwest cities is a distributing point.

Kansas City and St. Louis are both big cities. It is here where the tides of the market are studied and the future of the industry is forecast. It is a place where the tides of the market are studied and the future of the industry is forecast.

Mighty Mart of the Midwest

Chicago's famed Merchandise Mart is a place where the tides of the market are studied and the future of the industry is forecast. It is a place where the tides of the market are studied and the future of the industry is forecast.

Nothing is for side. You order from samples. Delivery may be made any day of the week. Boston and Los Angeles.

Here a buyer from Buenos Aires or Baltimore—or Blue Eye, Missouri—can usually find what he wants without running all over America hunting it (page 830).

To haul all samples shown here would take a train 17 miles long. It would be loaded with infinite goods, from lamps, carpets, furniture, clothing, china, glass, and curtains to pottery and toys.

In 1947 this, our second largest city, held 946 conventions. They make hotel rooms hard to find. When machine-tool makers held a show, 175,827 buyers registered from 34 different countries!

Political parties like to hold their national conventions here. Since Lincoln was nominated, Chicago conventions have named a long list of Presidential candidates.

One of earth's three chief financial centers, Chicago has 68 banks with total deposits of more than eight billion dollars. Two of these, the First National Bank of Chicago and the Continental Illinois National Bank and Trust Company, are among the seven largest in the United States.

Our Daily Bread—and Food for Europe

To many American farmers, the Chicago Board of Trade's wheat pit is the most significant spot in the whole Midwest. It interests you and me, too, because of the effect of prices here upon what we pay for a sack of flour. The Board itself doesn't buy or sell—the members do that.

Pioneer farmers hauled corn and wheat to town and sold for what they could get; 250 miles away, prices might be higher or lower, depending on nearness to a flour mill, drought, floods, or other factors.

Wagon trains of grain rumbled into early Chicago.

One day in 1848 swearing bullwhackers cracked their black-snake whips over grunting oxen yoked to heavy wagons that bogged down in Chicago's muddy lanes. They halted, finally, before a rough wooden building at the corner of Clark and Water Streets—Chicago's first Board of Trade.

Now, 100 years later, figurative mountains of wheat and corn tumble through this most gigantic of all grain exchanges. Here Uncle Sam buys hundreds of shiploads of wheat for European relief; private dealers sell to ports as far away as Singapore.

If you run a flour mill, starch or breakfast food factory, or corn syrup works, or export wheat, you can buy here for "cash" and get quick delivery from cars already on Chicago sidings.

To deal in futures or to hedge, members

go down to one of the five pits on the main floor of the Exchange and join other yelling gesticulating brokers.

To gallery spectators it all looks mad. But every hand held up, palm in, palm out, one finger up, two, three, is a signal for a bid to buy or an offer to sell, and indicates at what price. You soon catch on (page 833).

Hometown Papers Mirror Midwest Life

But more than thoughts of wheat prices and farm and factory problems engages the Midwest mind. Its people are interested in each other, especially folks in towns and smaller cities. Nearly every family takes at least one big city daily; but it's the hometown paper they read first and most closely. They want to see what the other fellow is doing.

Country weeklies and biweeklies flourish by the hundreds. Minnesota alone has between 400 and 500.

Many rural editors gain State-wide fame. I know several whose amusing paragraphs are steadily picked up by big dailies.

Ed Howe, "Sage of Potato Hill" who long edited the Atchison, Kansas, *Globe*, was known across America. In the same column he'd mix want ads, jokes, gossip, and personals. To hold readers, he once told me "You have to make 'em laugh, make 'em cry."

In *His Steps*, by that prolific writer Charles M. Sheldon, gained a circulation in the U. S. larger than that of any other book except the Bible. In his Topeka home the Reverend Mr. Sheldon once showed me a whole shelf of these books—I think it was more than 30

each translated into some foreign language.

Sheldon didn't know how many copies his book had sold; he thought about 18,000,000 here and abroad. Other estimators say about 25,000,000.*

William Allen White walked with kings. His *Emporia Gazette*, printed in a little Kansas town, was his great love. Though national magazines bid for his articles and great eastern dailies tried to hire him at many times what he might earn on his small Kansas daily, he preferred that life.

White could and did "take the hide off" Kansas when he had a crow to pick. Usually the Jayhawkers chuckle; always they started thinking.

Once White took me to a Rotary luncheon in Emporia; with us went a preacher, a photographer, and a drygoods salesman. A bit later I saw my Kansas friend in Washington,

* See "Speaking of Kansas," by Frederick Stimpich *NATIONAL GEOGRAPHIC MAGAZINE*, August, 1937.



What Myriad Trees We've Got since Pilgrim Fathers Built Their Houses!

There is not a tree in the Midwest that is not a native of the continent. The first settlers found a forest of trees that were not only beautiful but also useful. They found a forest of trees that were not only beautiful but also useful. They found a forest of trees that were not only beautiful but also useful. They found a forest of trees that were not only beautiful but also useful.

on his way to the White House because the President had sent for him.

So I know perhaps more than editors of big dailies, what the intimate home life of the Midwest is.

Mid-America on the Move

Relations between States in the Midwest are close because of so many hard easy ways are brought closer on by football games, horse races, horse shows, field trials and so on.

In Europe a man might be stopped by border guards two or three times in the distance in taking a Kansas family to drive to a football game.

It's always a big noise when the Tiger of the Mitten—Missouri University—battle over the championship with their friendly enemies, the Kansas Jayhawkers, or when Nebraska backs the Minnesota line, or the Green Bay Packers meet Chicago in Wrigley Field.

Glee club singers, basketball teams and automobile races all wind up the season with pictures of horses in the headlines.

If an Illinois plow salesman goes peddling in Kansas, he may marry some wheat farmer's daughter just as a Kansas City clerk courts in Omaha or Joplin. Jane finds a mate in Minnesota.

When Chicago was leaving, St. Louis sent a special train carrying gamblers and their engines. In Missouri country school at one time the teachers, we were to read a poem about that.

Between St. Louis and Chicago business ties have long been close. Yet St. Louis is different. It is more like a city in its social customs, its atmosphere, its history, its culture.

St. Louis Mellow and Leisurely

Elderly, leisurely St. Louis had its clubs, social societies, its clubs and its excellent concerts when Chicago was yet a brownie plunger and a man of naught and shanks and get rich quick and gamblers.

I was born in Missouri. I have kept a home in St. Louis for many years. I have seen the Missouri River from St. Louis, and I have seen the Missouri River from St. Louis.



Mamma Sow Swallows as Her Brood Make Hogs of Themselves

It is a common sight to see a sow with her brood of piglets in a field. The sow is usually the largest and most active of the group, and the piglets are usually smaller and more active. The sow is usually the one who finds food for the piglets, and the piglets are usually the ones who eat the food. The sow is usually the one who protects the piglets from danger, and the piglets are usually the ones who follow the sow. The sow is usually the one who leads the piglets to a new field, and the piglets are usually the ones who follow the sow. The sow is usually the one who teaches the piglets how to eat, and the piglets are usually the ones who learn from the sow. The sow is usually the one who teaches the piglets how to play, and the piglets are usually the ones who learn from the sow. The sow is usually the one who teaches the piglets how to live, and the piglets are usually the ones who learn from the sow.

to have been played ball in many towns, lived on the old "plank" stage road across Howard County, heard mid-timers demand for James or tell how Quantrell's "border riders" raided and burned Lawrence, Kansas.

For a few weeks, I worked as advance agent for a show which passed many Midwestern towns. It was good work to be a human geographer in any land.

So I know it's wrong to say, as hurried visitors may, that all these Midwest towns look alike. What kind, for example, of American Wisconsin, with its paper mills in Hutchinson, Kansas with its oil fields and sugar wheat?

Or how does Columbia, Missouri with its state capitol and classic University buildings, its symphony and Christian Colleges for women, its cathedral and movie halls, look like that restless, energetic and money-making city of people only a few hours to the south?

Some of them all have the same gas stations, chain stores, chain movies, and maybe chain hotels, their main business offices and col- umns are the same, or loved by the same single characters. But how utterly

different are such towns as St. Louis and Kansas City!

St. Louis makes mountains of its miles of streetcars, enough to give a nation's headaches.

But at dinner, unless you bring up business themes, I never do not talk about the Missouri Historical Society, because it's open to Argentina, or what Washington may learn from Daniel R. Fitzpatrick's latest cartoon in the *St. Louis Post-Dispatch*.

Kansas City's Growing Pains

Kansas City is younger, still feeling its growing pains, stands on the western edge of the scene. It belongs as much, or more, to Kansas what it is about, trade, or to the cow ranches of Old Texas and Texas as it does to Missouri (page 850).

It has its research laboratories, one of the best training art school, and William Rockwell Nelson Gallery of Art; but, being young, restless, eager to test new ideas, it goes to work, eats and plays golf faster. It can't wait for tomorrow. Yet, like more sedate St. Louis, in its own vital, vigorous way it also helps fill our Breadbasket in this ever-changing Midwest.

The Society's New Map of the North Central United States

THE NEW map of the North Central United States, which reaches the 1,800,000 member-families of the National Geographic Society as a supplement to this issue of their Magazine, is the sixth and last in The Society's series of large sectional maps of the United States.

This series furnishes a full-color reference map of the country equivalent in size to a single sheet more than seven feet by four feet.

Five maps previously published were: Southwestern United States, June, 1945; Northwestern United States, June, 1945; Northeastern United States, September, 1945; Southeastern United States, February, 1947; and South Central United States, December, 1947.*

Five of the six sectional maps are made on the uniform scale of 1:2,500,000, or 39.5 miles to the inch. The densely populated northeastern section required an even larger scale—1:1,750,000, or 27.6 miles to the inch.

Map Shows Nine Midwest States

Within the decorative borders of the new North Central United States map, 15 to 20 miles, are presented the nine States between the Great Lakes and the Rockies—North and South Dakota, Minnesota, Wisconsin, Nebraska, Iowa, Illinois, Kansas, and Missouri—as well as parts of adjacent States and Canadian Provinces.

Main highways are clearly marked and numbered, elevations indicated, national parks and monuments and principal railways and canals shown.

Lakes Superior and Michigan dominate the northeastern quarter of the map. Fort Peck Dam and Calumet Springs lie along the western border, and Nashville, Tennessee, shows in the southeast corner.

The geographical center of the United States falls within the area of this map—in north central Kansas, near Smith Center. Almost 600 miles northward is the geographical center of the whole North American Continent—a few miles west of Devils Lake, North Dakota.

Up on Lake of the Woods appears the northernmost point in the United States—the stry peninsula, known as the Northwest Angle, which forms a part of Minnesota, although it is connected to Canada by land and separated from United States soil by water.

Shawneetown, "newest and oldest town in Illinois" is shown in its new location some three miles back from the often-flooded banks of the Ohio River.†

Near Lake Itasca, Minnesota, source of the great Mississippi, visitors can wade across the infant river on steppingstones.

An important base for heavy bombers is now located near Rapid City, South Dakota. Near here, in November, 1935, the intrepid two-man crew of the National Geographic Society-U. S. Army Air Corps stratosphere balloon *Explorer II* took off on its record-breaking flight to an altitude of 72,395 feet‡

Now from Camp Ripley, 100 miles north of Minneapolis, new plastic balloons called "skybucks," similar in design to *Explorer II*, carry instruments 20 miles up and float through the skies of the Midwest, gathering data for the Office of Naval Research.

But still the record set 13 years ago stands as the greatest height yet reached by man.

Just east of Kansas City is Independence, Missouri, home town of President Harry S. Truman. In southeastern Missouri the map shows Big Spring State Park, a favorite spot of the President. An enlarged picture taken in Big Spring Park was used in the front panel of the map case presented the President by the National Geographic Society.

Romance of Place Names

Among the 8,927 place names on this map are many familiar surnames. Accordingly, hundreds of American families will find their own name somewhere on the map.

A cheerful note is struck by such place names as Joy, Good Hope, What Cheer, and Fair Play. Hazard and Gravity strike a more sober chord. Many names are picturesque such as Sleepy Eye, Concrete, Crocus, Young America, and Potato Creek. Blunt of the Indians are such names as Broken Bow, Spotted Horse, Wounded Knee, Lost Nation, and Bad Nation.

* Members may obtain additional copies of these sectional maps and the Map of the United States by writing to the National Geographic Society, Washington 6, D. C. Prices, in United States and Possessions: 60¢ each, on paper; \$4. on linen. Index, 25¢. Outside United States and Possessions, 75¢ on paper; \$1.25 on linen; Index, 50¢. All remittances payable in U. S. funds. Postage prepaid. Also available is an enlarged map of the U. S., 67" x 43½", on heavy chart paper, for \$2 in U. S. and Possessions; Index, 25¢. Elsewhere, \$2.45. Index, 50¢. Postpaid. Mailed rolled to U. S. and Possessions; postal regulations necessitate folding them for mailing to all other places.

† See "Men, Mouse, and Mink of Northwest Angle" and "Shawneetown Forsoakes the Ohio," both by William H. Nicholas in the August 1947, and February, 1948, issues of the NATIONAL GEOGRAPHIC MAGAZINE.

‡ See "Man's Farthest Afoot," by Capt. Albert W. Stevens, in the January, 1910, NATIONAL GEOGRAPHIC MAGAZINE.

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purpose for which it was organized, the National Geographic Society publishes the National Geographic Magazine, which is devoted to the increase and diffusion of geographic knowledge. The Magazine is published weekly, except during the winter months, when it is published bi-weekly.

Articles and photographs are selected for publication in the Magazine with reference to their scientific value.

In addition to the editorial and publishing services constantly being made, the Society has sponsored more than one hundred expeditions, some of which required years of field work to achieve their objectives.

The Society's latest expedition has been planned on a scale of importance that has never before been attempted in the history of the United States. It is a project of the greatest importance to the world, and it is one that the Society is proud to undertake. The expedition is planned to explore the interior of the Amazon basin, and it is one that the Society is proud to undertake.

In March, 1914, the Society and the Smithsonian Institution, through the aid of the United States Government, organized the first expedition of the kind ever undertaken in the history of the United States. The expedition was led by Dr. Hiram W. Henshaw, and it was one that the Society is proud to undertake.

On November 12, 1911, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest airplane, designed by Capt. Albert W. Stevens and Capt. Fred A. Astor, took aloft in the gondola nearly a ton of new and improved instruments and obtained results of extraordinary value.

The National Geographic Society and U. S. Army Air Corps have been working together for many years, and it is one that the Society is proud to undertake.

The Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,000 feet was attained.

The Society granted \$25,000, and an additional \$25,000 was given by individual members, for the purpose of the expedition to the Grand Canyon of the Colorado, and the forest of the Grand Canyon of the Colorado.

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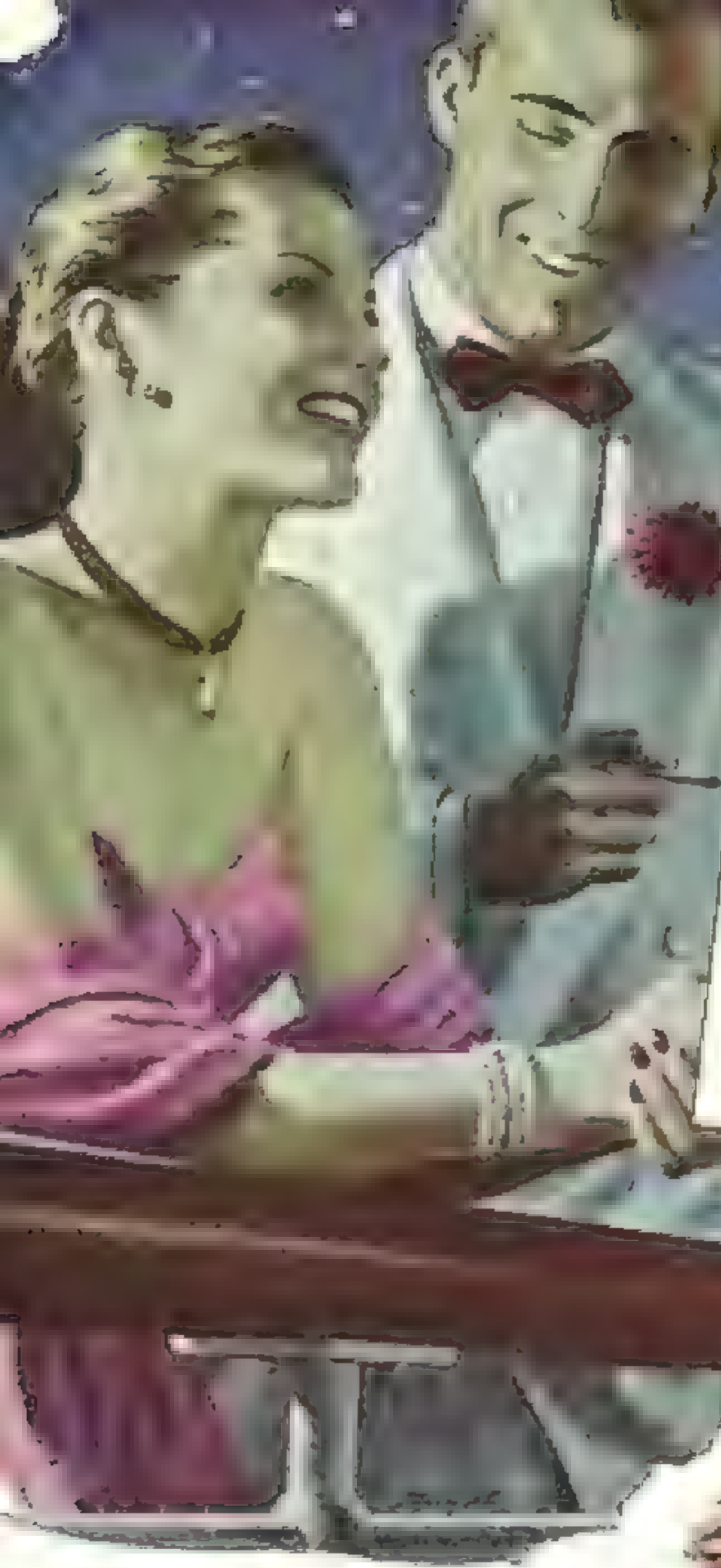
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Here are some figures which show how milk prices compare with food prices, from 1939 to 1947:

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Notice that milk has not increased nearly so much as the average of other foods. Our profit from all of our milk divisions averaged less than 4½ cent per quart of milk sold in 1947 — far less than the public thinks business makes—and much less than the average profit in the food industry.

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An impartial national survey shows that most Americans consider 10%-15% an *average* fair profit for business. Compared to this, the average profit in the food industry is less than 5%. And National Dairy's profit in its milk divisions in 1947 was less than 4%.



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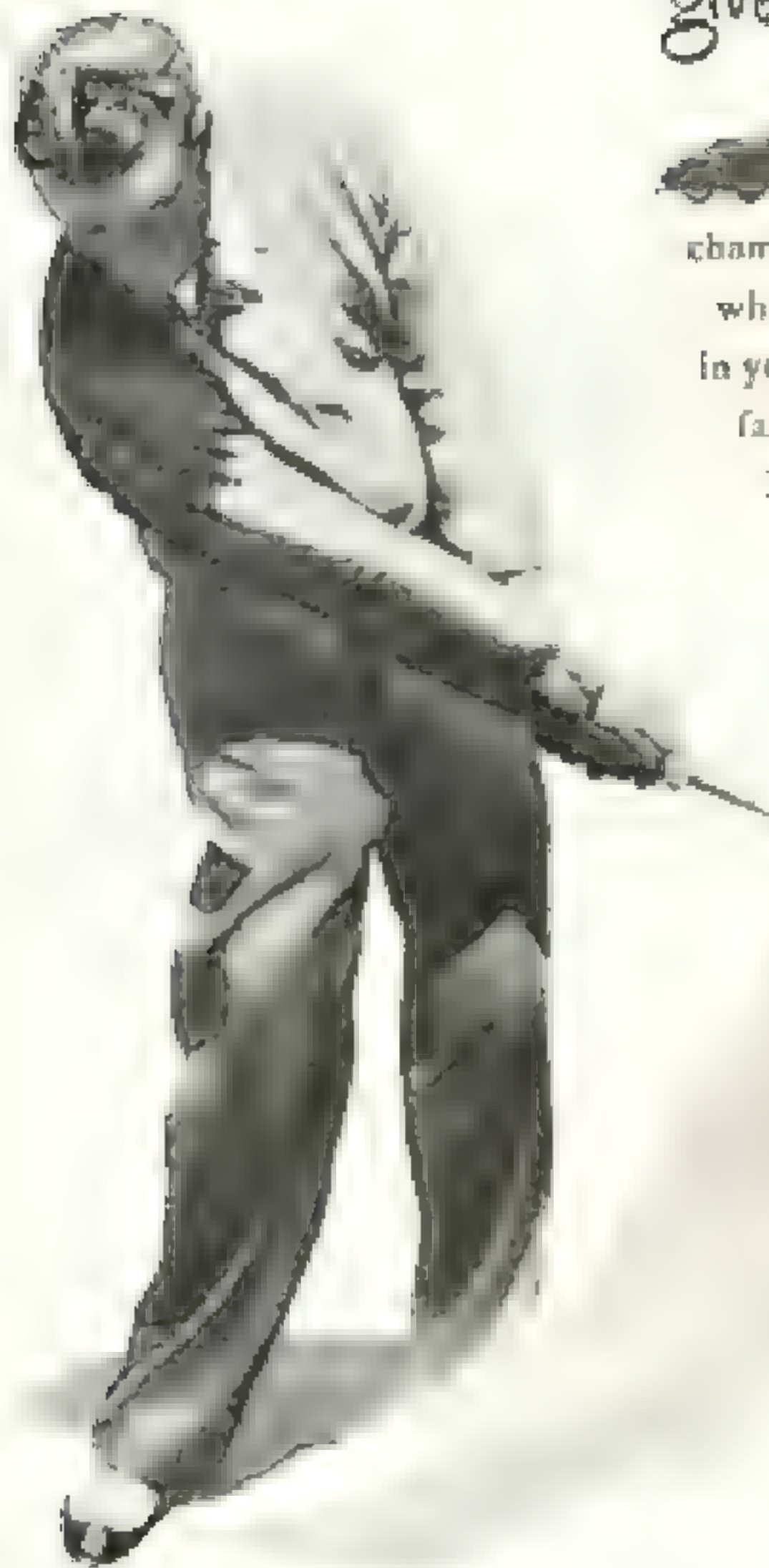
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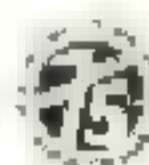
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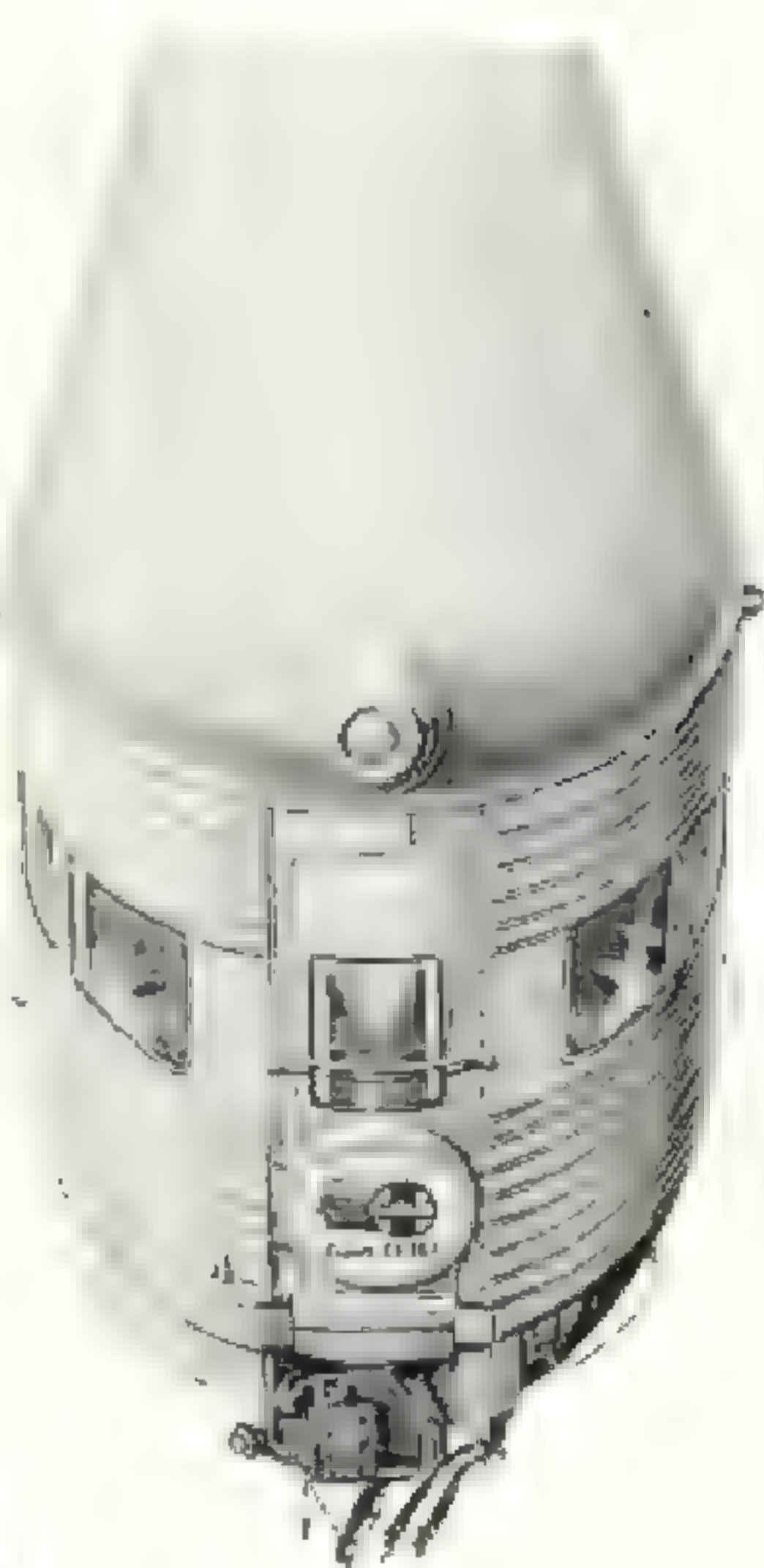
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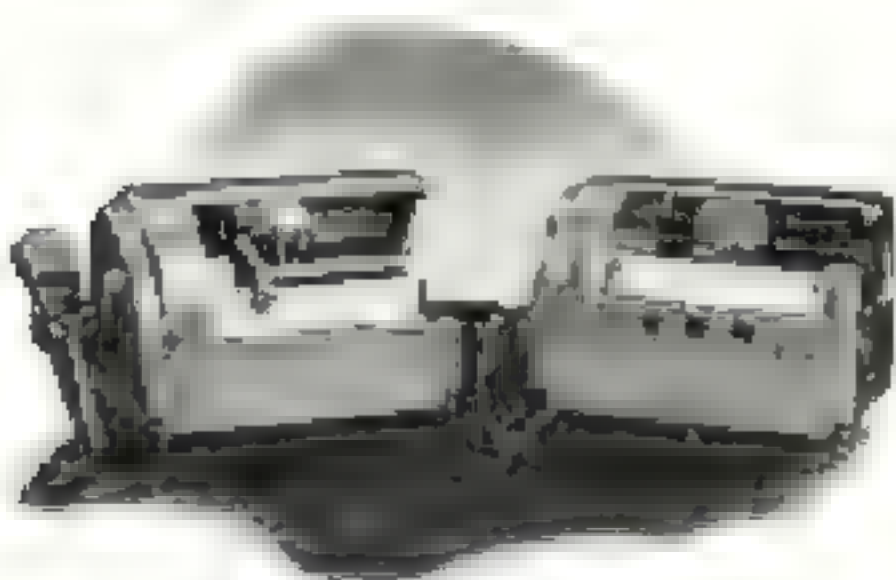
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 3. $\int_{\mathbb{R}^n} |f(x)|^p dx = 1$ (normalization)

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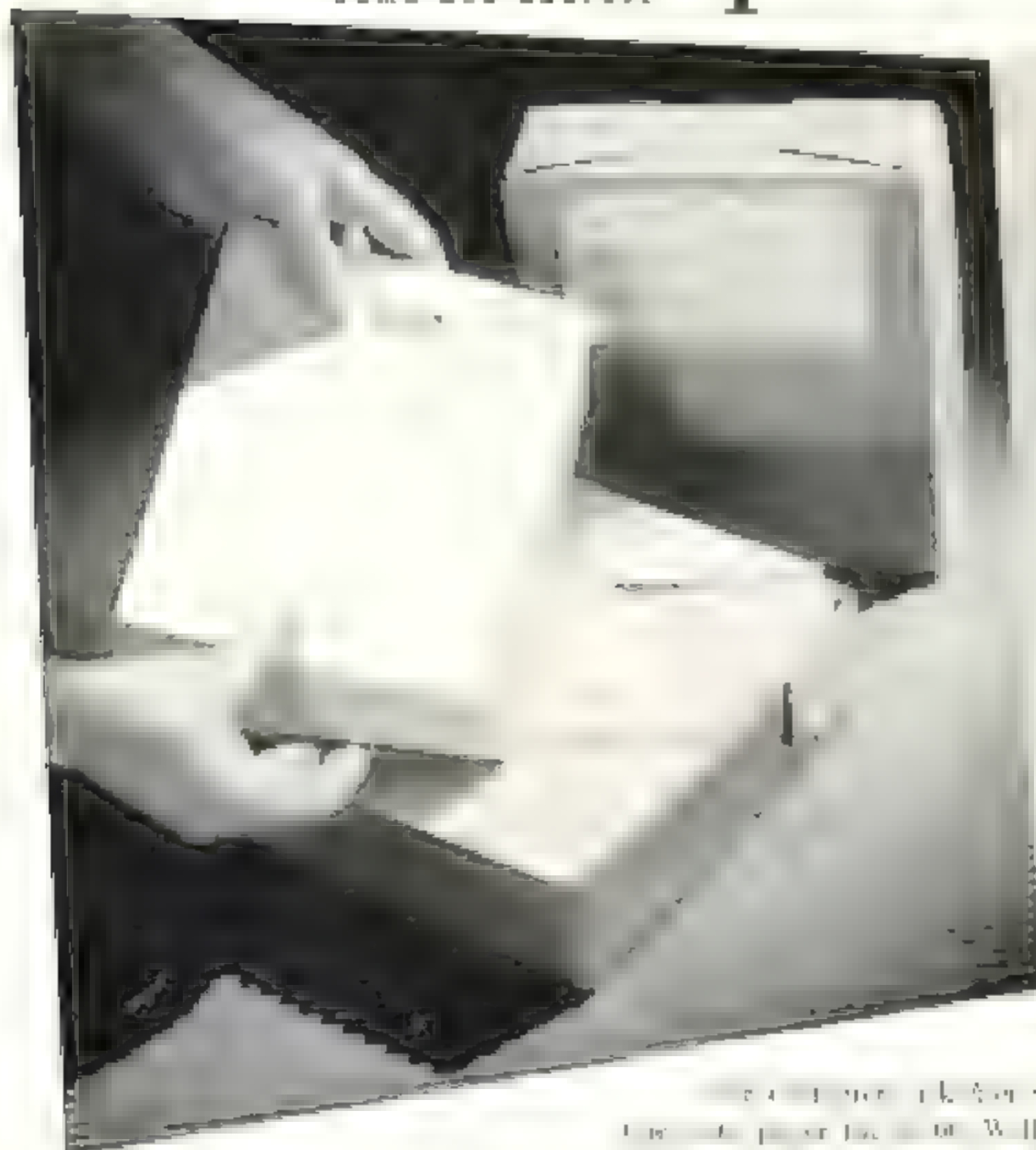
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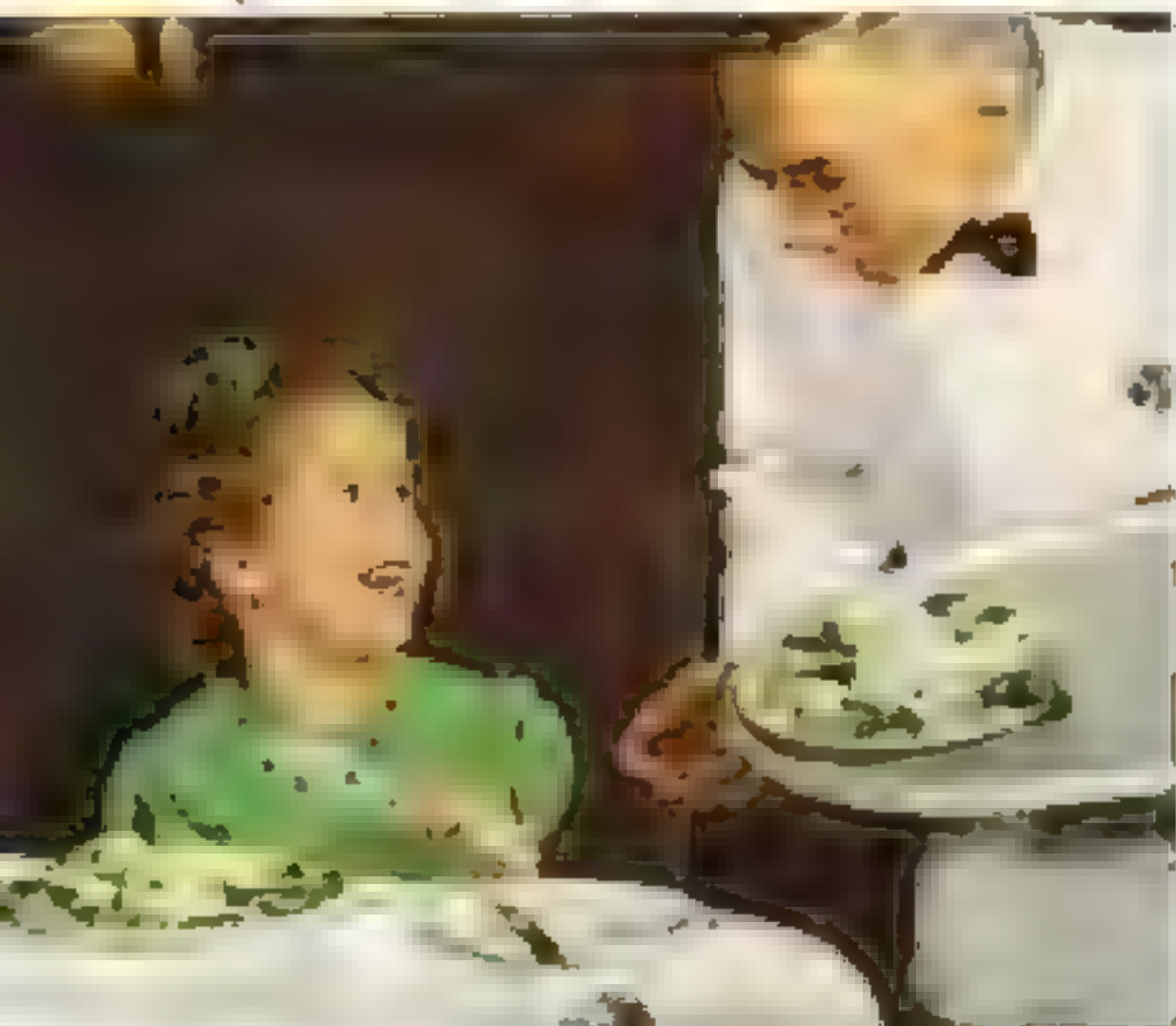
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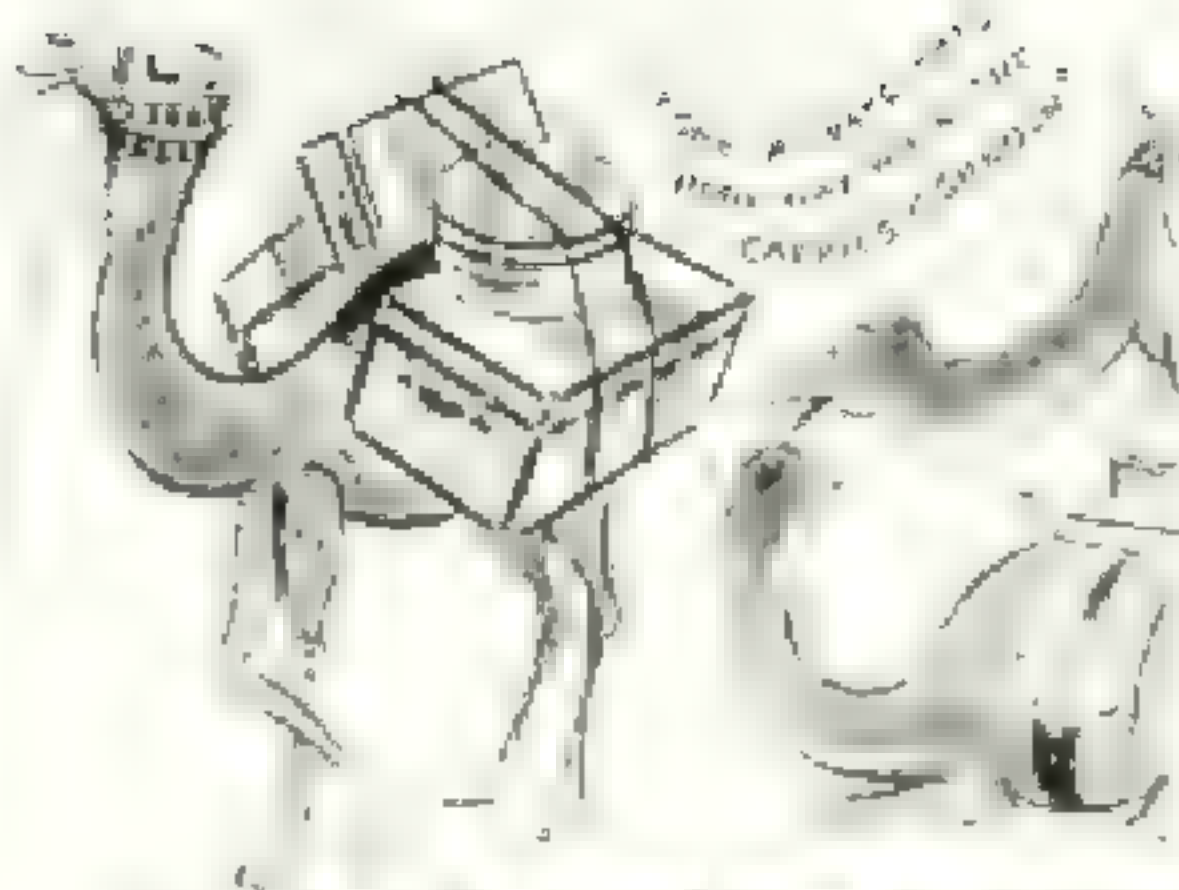
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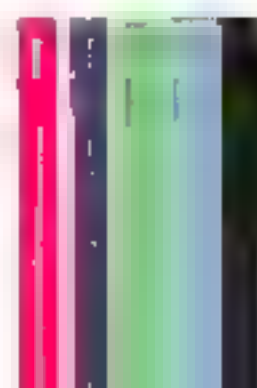
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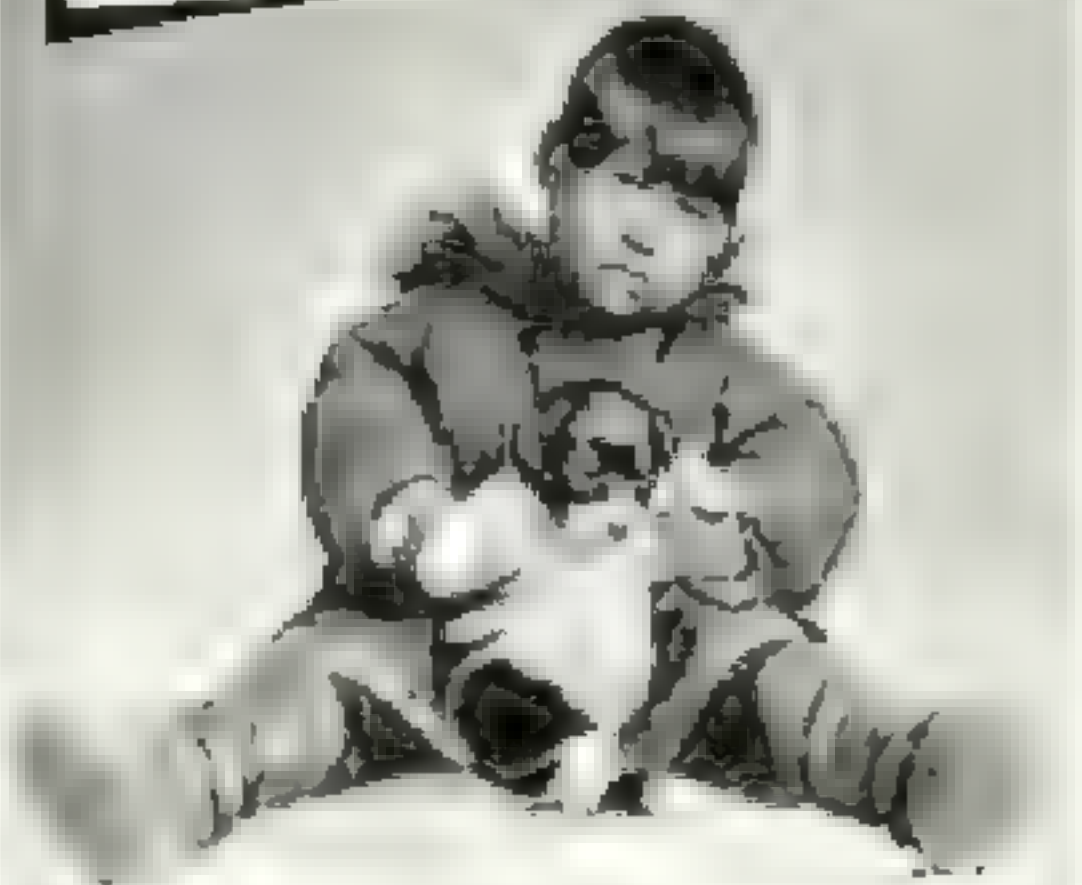
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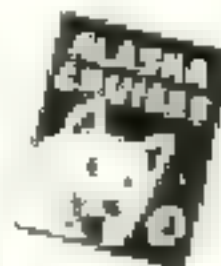
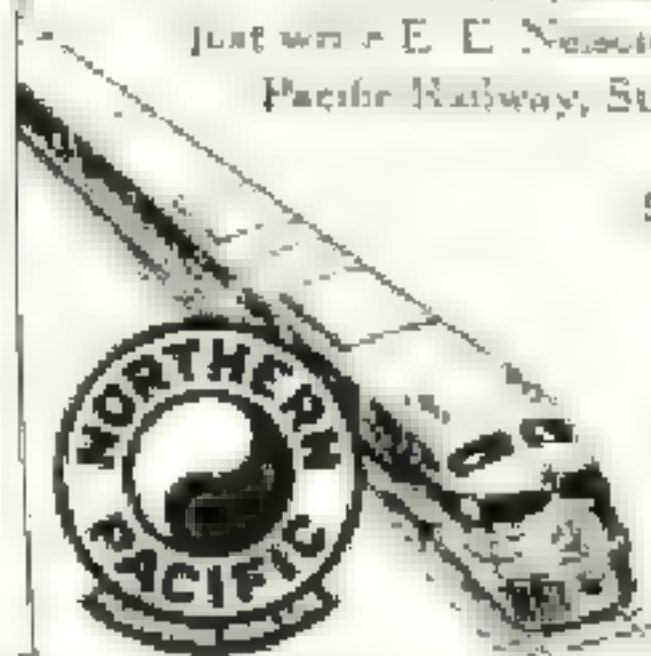


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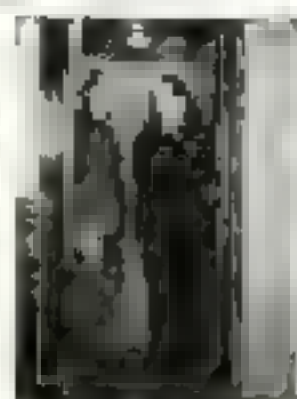
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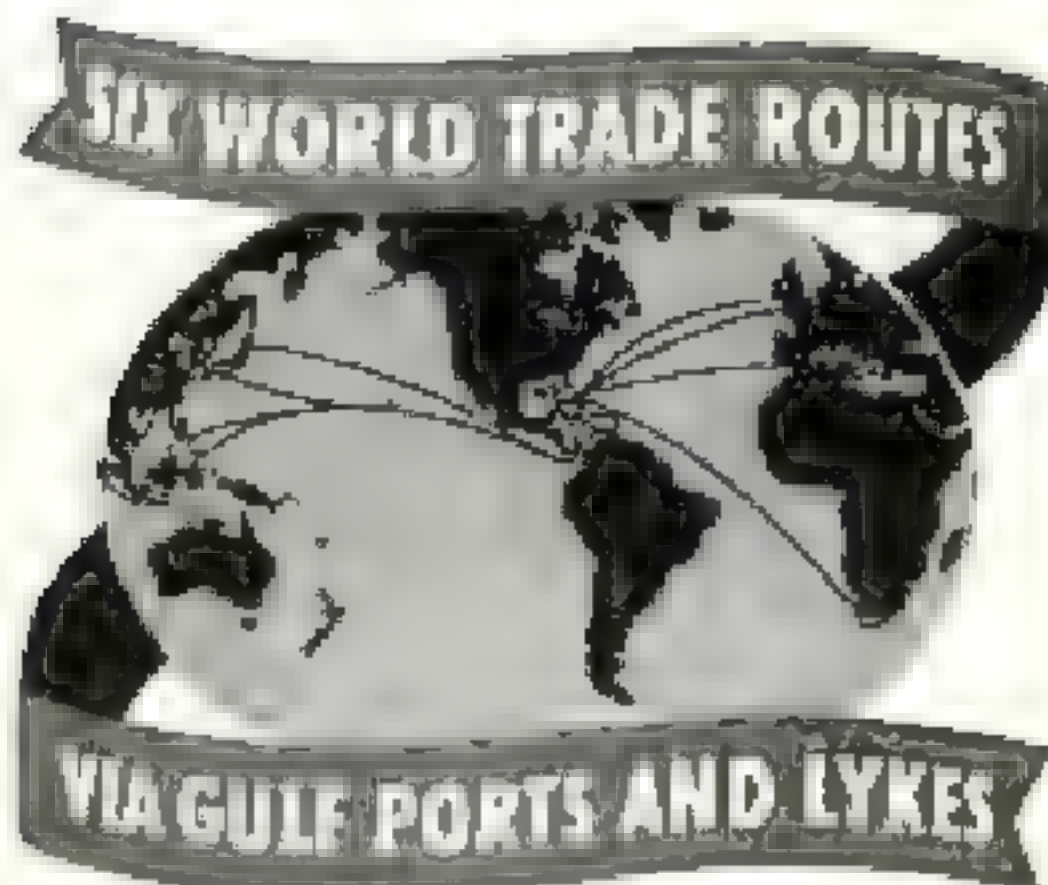
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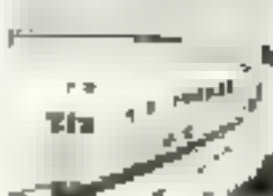
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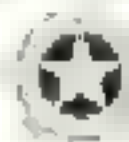
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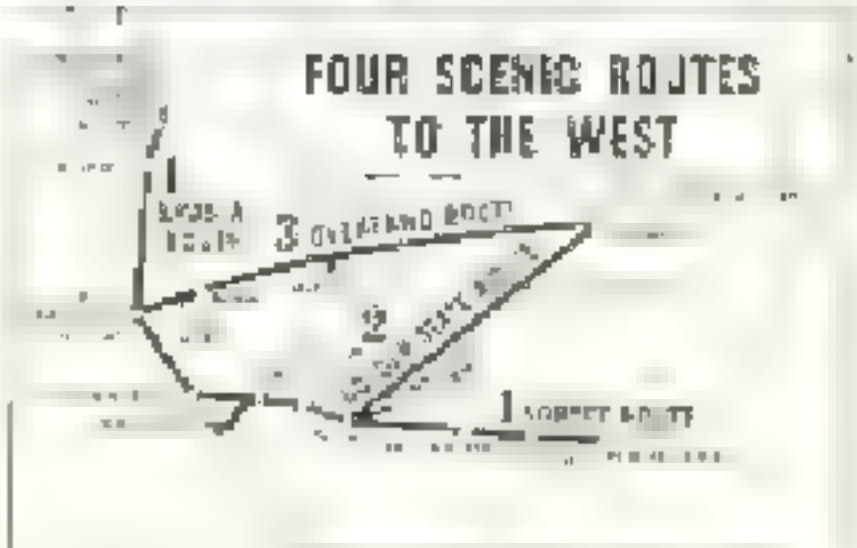
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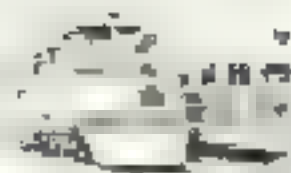


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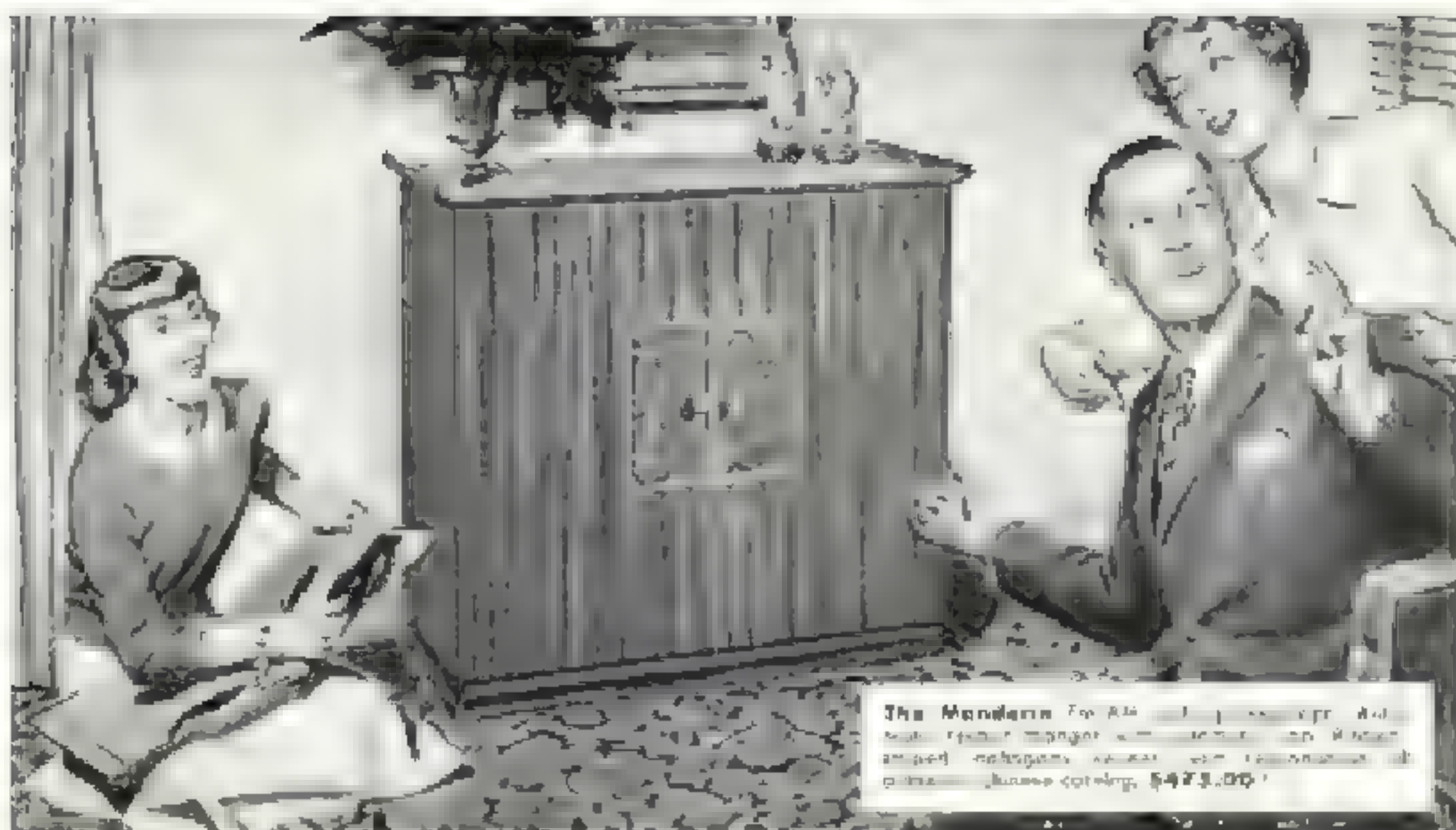
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"STOP!" cried Dad, when I mentioned a new radio. "Our old one still works, doesn't it?" But Mother and I thought we saw a twinkle in his eyes. Perhaps he *could* be tempted! So one sunny morning we just maneuvered him to a Stromberg-Carlson display.

"LOOK!" Mother exclaimed. "What lovely cabinets! Here's a fine place that seems just made for our living room." (Mother knows Dad has an architect's soft spot for good design.)

"LISTEN!" Dad called out as we played one of his favorites, a record of the Sextette from Lucia. "You can hear every note clear as life—it's like being

right at the opera!" From then on, Dad had the time of his life with Stromberg-Carlson's out-of-this-world FM-AM radio, and record player. "Wrap it up," he said, "exactly what I've always wanted."

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The Happiness FM-AM radio-phonograph. Automatic record changer. Authentic 19th century design in hand-rubbed mahogany veneer. \$385.



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 It contains a report of the American Medical Association on the
 subject of the "American Medical Association's Policy on the
 Use of Force in the Treatment of Mental Patients."

1. The first part of the document is a letter from the President of the United States to the President of the Senate, dated January 1, 1877. The letter is signed by Rutherford B. Hayes and is addressed to Charles Schreyer, President of the Senate. The letter is a copy of the original, which is in the possession of the President of the Senate.

ספרו "המדינה והדת" יצא לאור ב-1978.

■ **8월 17일**

$$M \otimes_{\mathbb{Z}} \mathbb{Q} \cong \mathbb{Q} \oplus \mathbb{Q}$$

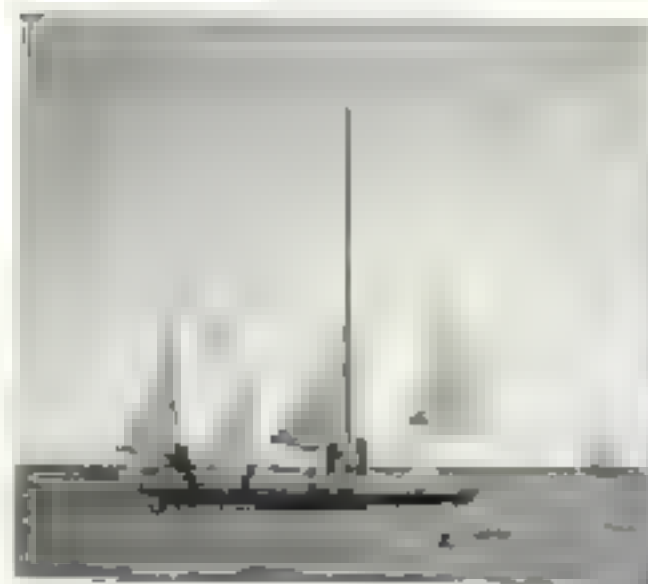
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5. *Conclusions*

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1. *Journal of the American Medical Association*, 1997; 278: 1039-1044.

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(continued)

$$H_1: \theta_1 \neq \theta_2 \neq \dots \neq \theta_k \neq \theta_1$$

6-11-0

1.2.2.6. *Phylogenetic analysis*

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

[H. A. G.] H₂O 400°C.

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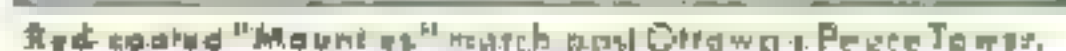


A black and white photograph showing a large crowd of people gathered on a beach or waterfront. They are looking out towards the ocean. A tall flagpole with a flag is visible in the background. The scene is captured from a low angle, emphasizing the scale of the gathering.

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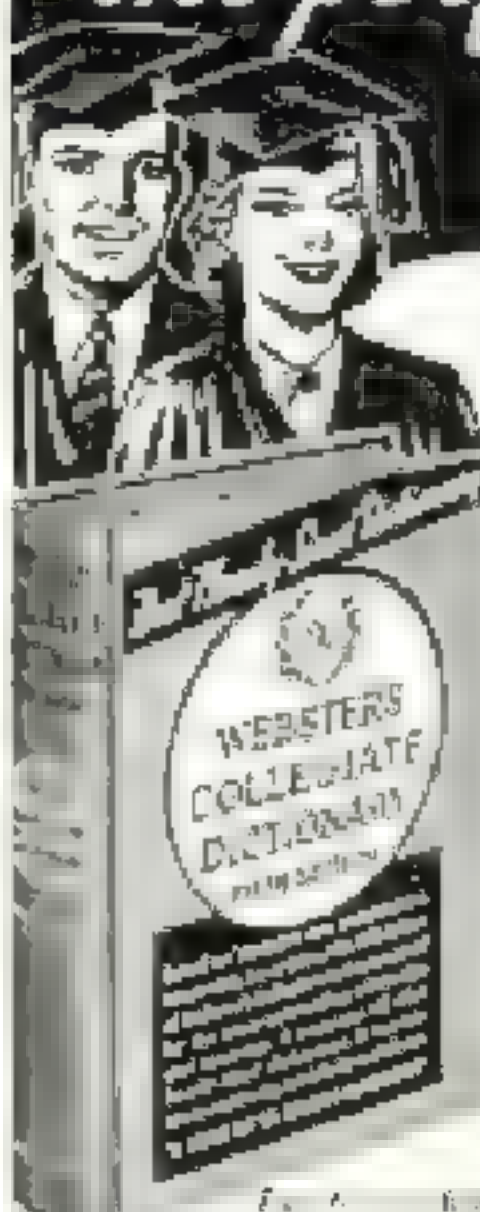
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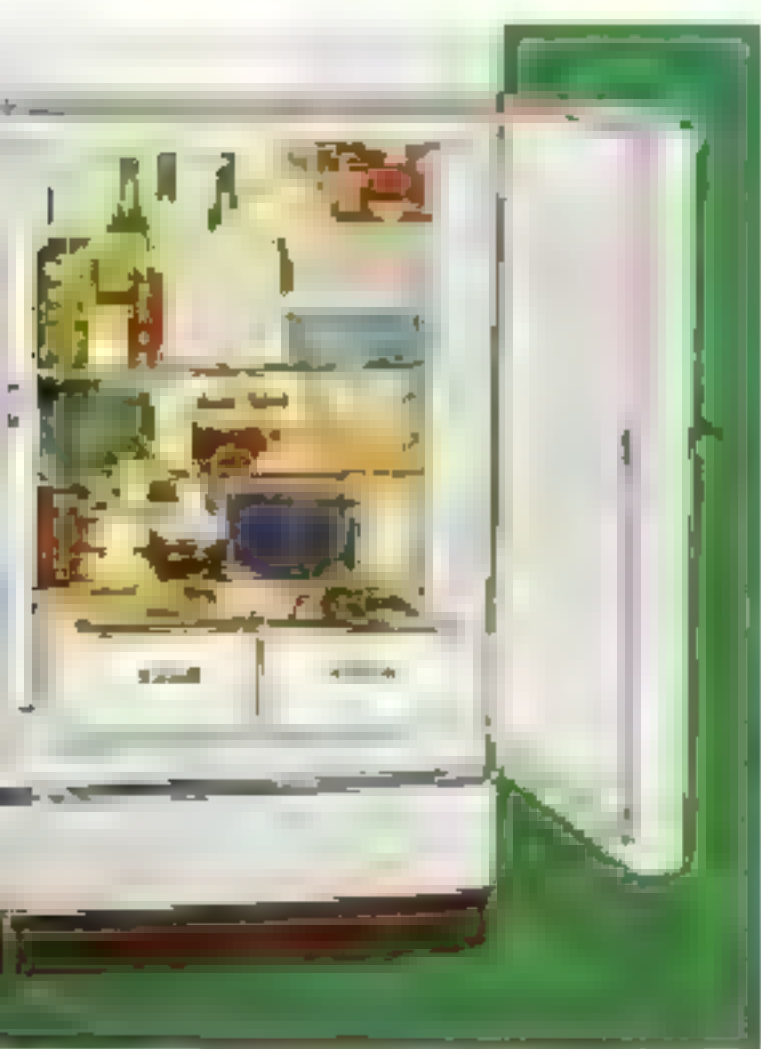
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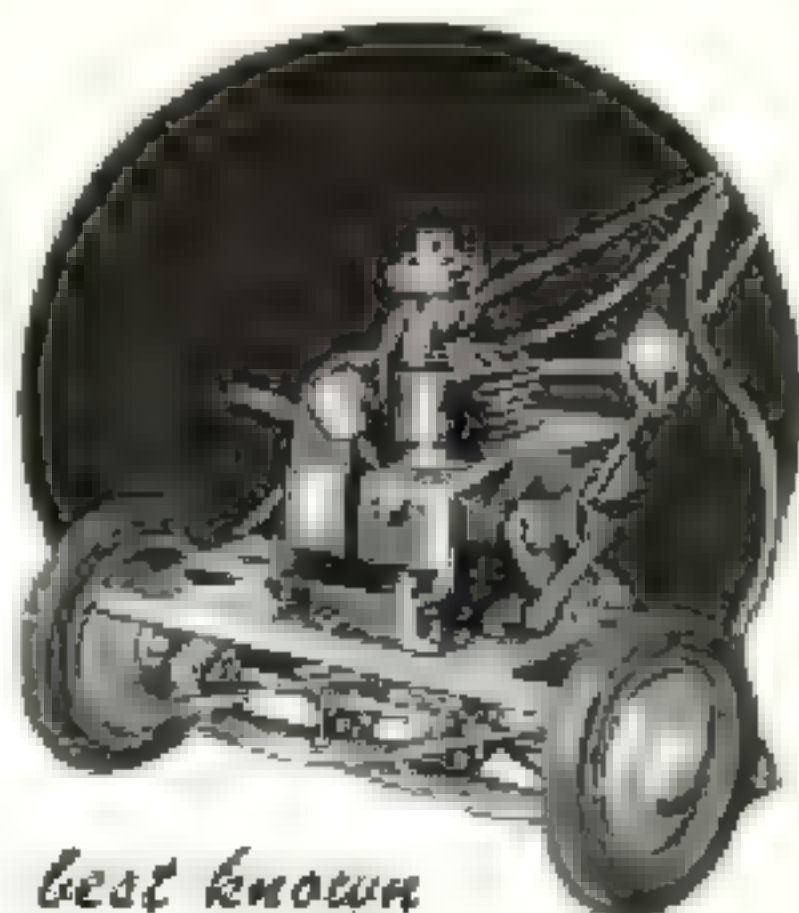
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...with a Cine-Kodak Camera

The analysis can be used to show that the model is not consistent with the data. The model is not consistent with the data because the model is not consistent with the data.

[illegible]

8. The following are the results of the 1998 survey of the 100 largest U.S. corporations, as ranked by market capitalization. The table shows the number of employees in each of the four categories of workers, as well as the percentage of total employees in each category.

The Supply Situation

...the ...

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ROCHESTER 4, N. Y.



Cine-Kodak Film

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$$\begin{aligned} & \left(\frac{1}{2} \right)^n = \frac{1}{2^n} \\ & \left(\frac{1}{2} \right)^n = \frac{1}{2^n} \\ & \left(\frac{1}{2} \right)^n = \frac{1}{2^n} \\ & \left(\frac{1}{2} \right)^n = \frac{1}{2^n} \end{aligned}$$


Modena: 11-908
Proletar: 11-908

1. *Chlorophyll a* (Chl *a*)

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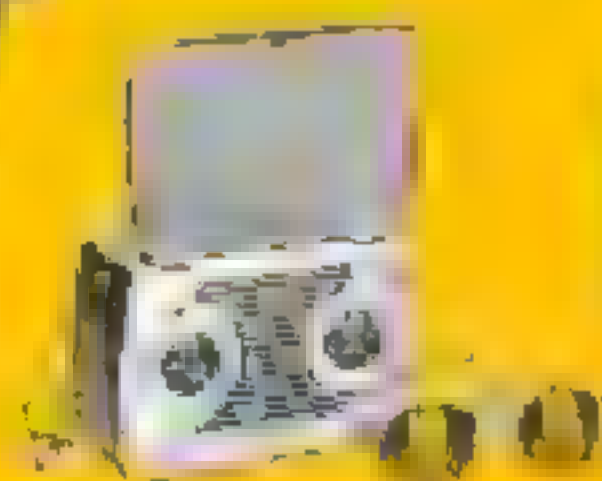


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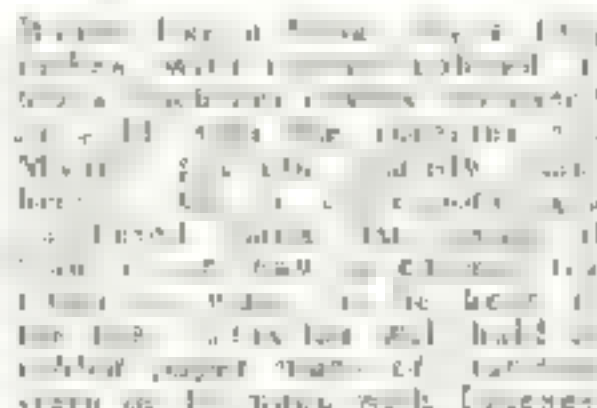
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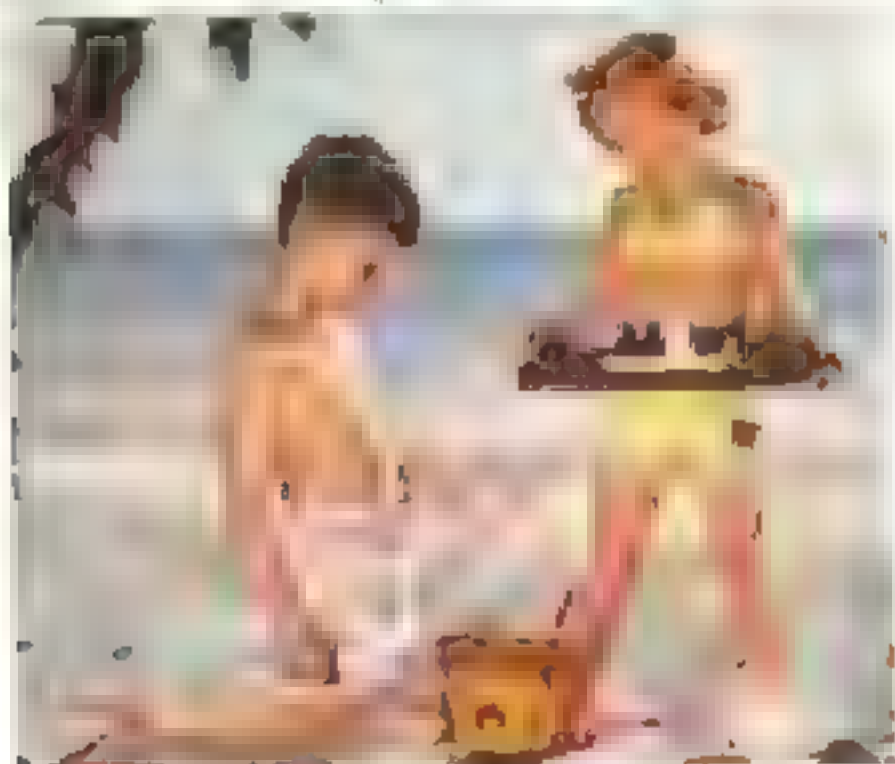
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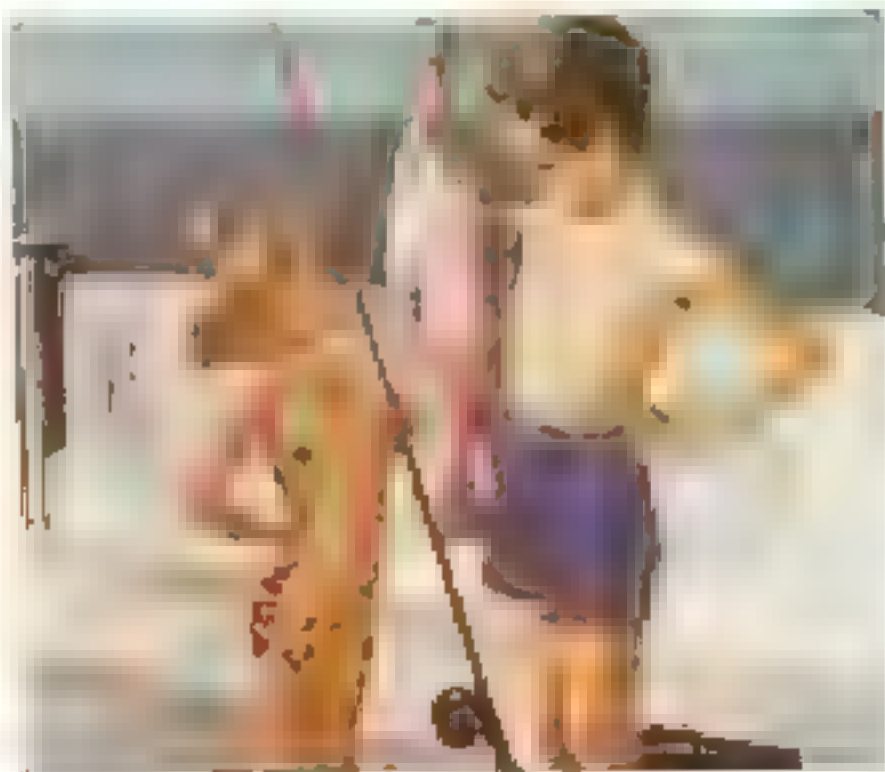


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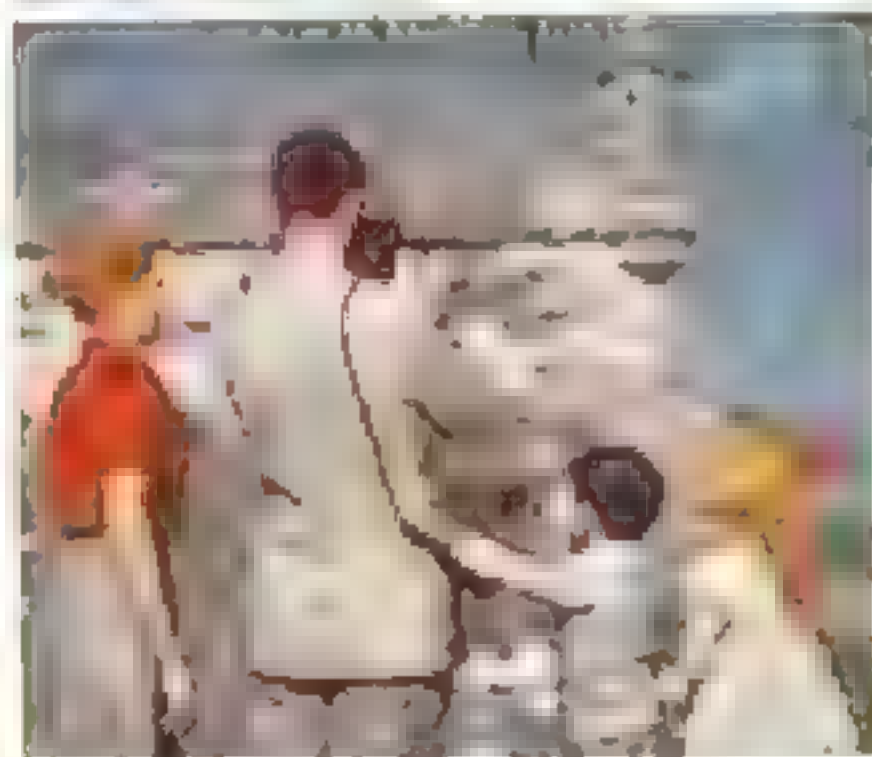
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